Science
Q
11
P62
STORAGE
Physical &
Applied Sci.
Serials

REGISTER

OF

PAPERS PUBLISHED

IN THE

TRANSACTIONS AND PROCEEDINGS

OF THE

AMERICAN PHILOSOPHICAL SOCIETY.

COMPILED BY

HENRY PHILLIPS, Jr.,

ONE OF THE SECRETARIES OF THE SOCIETY.

REGISTER

OF

PAPERS PUBLISHED

IN THE

TRANSACTIONS AND PROCEEDINGS

OF THE

AMERICAN PHILOSOPHICAL SOCIETY.

COMPILED BY

HENRY PHILLIPS, Jr.,

ONE OF THE SECRETARIES OF THE SOCIETY.

PHILADELPHIA:
McCALLA & STAVELY, PRINTERS, 237-9 DOCK STREET.
1881.

4

REGISTER

OF

PAPERS PUBLISHED IN

THE TRANSACTIONS

OF THE

AMERICAN PHILOSOPHICAL SOCIETY.

By Henry Phillips, Jr.,

One of the Secretaries of the Society.

TRANSACTIONS. [OLD SERIES.]

VOLS. I, II, III, IV, V, and VI.

Account of an Aurora Borealis, as seen at Lancaster, Pa..... I. 404
Account of Eruption of Vesuvius in 1767..... I. 345
Account of two Hearts found in one Partridge..... II. 330
ALLISON, Rev. Burgiss.—Description of a Newly Invented Globe Time-Piece..... V. 82
Description of the Pendant Planetarium..... V. 87
ANDERSON, Dr. James.—Disquisition on Wool-bearing Animals..... IV. 149
..... IV. 153
ANTES, Col. F. A.—On the Hybernation of Swallows..... VI. 59
ANTILL, E.—Essay on the Vine, &c..... I. 180
Method of Curing Figs and Observations on Hemp..... I. 266
Apparent Time of the Contacts of the Limbs of the Sun and Venus, &c., June 3, 1769..... I. 120
BARD, Sam., M.D.—On *Angina suffocativa*..... I. 388
Barometrical Measurement of the Blue Ridge, Warm Spring and Allegheny Mountains in Virginia, taken in the summer of 1791..... IV. 216
BARTON, B. S.—On the Means of Preventing the Deleterious Consequences of the Bite of the *Crotalus horridus* or Rattlesnake..... III. 100
Inquiry into whether the Honey Bee is a Native of America. III. 241
Botanical Description of the *Podophyllum diphyllum* of Linnæus..... III. 334
On the Fascination of the Rattlesnake and other American Serpents..... IV. 74

BARTON, B. S.—American Dipus or Jerboa..... IV. 114
Observations, &c., on Articles taken from an Ancient Tumulus at Cincinnati, O..... IV. 181
Stimulant Effect of Camphor on Vegetables..... IV. 232
Account of the Poisonous and Injurious Honey of North America..... V. 51
On a New Vegetable Muscipula..... VI. 79
On a New Species of North American Lizard..... VI. 108
Supplement to paper on the Dipus..... VI. 143
Hints on Etymology of certain English words and on their affinities to words in the languages of European, Asiatic, and American (Indian) nations..... VI. 145
BARTON, Wm.—Observations on the Probabilities of the Duration of Human Life and the Progress of Population in the United States of America..... III. 25
BARTRAM, Isaac.—Distillation of Persimmons..... I. 301
BARTRAM, Moses.—Observations on the Native Silk Worms of North America..... I. 294
BELKNAP, Jeremy.—Description of the White Mountains in New Hampshire..... II. 42
Observations on the Aurora Borealis..... II. 196
On the Preservation of Parsnips by Drying..... II. 199
BIDDLE, Owen.—Account of the Transit of Venus June 3, 1769, as Observed at Cape Henlopen..... I. 83
BILLINGS, Capt. Wm.—Thermometrical Journal of the Temperature of the Atmosphere and Sea on a voyage to and from Oporto..... III. 194
BRADLEY, John.—Account of the Transit of Venus June 3, 1769, as Observed at the Lizard Point..... I. 108
BRITT, Dan'l, and **TOWER**, Geo.—Thermometrical Observations made at Fort Washington from June, 1790, ending April, 1791..... IV. 329
BROWN, Samuel, M.D.—Description of a Cave on Crooked Creek, with Remarks, &c., on Nitre and Gunpowder.. VI. 235
BRYANT, William.—Account of an Electrical Eel or Torpedo from Surinam..... II. 166
BULL, Col.—Notes concerning a Vegetable found under ground..... II. 160
BUSHNELL, D.—General Principles and Construction of a Sub-marine Vessel..... IV. 303
CARTER, Langdon.—Observations on the Fly Weevil, &c.... I. 274
Catalogue of Plants to be Encouraged in the American Colonies, &c..... I. 325
CATHRALL, Isaac, M.D.—Observations on Black Vomit..... V. 117
CLAY, Jos.—Observations of the Figure of the Earth..... V. 312
Demonstration of a Geometrical Theorem..... VI. 201

CLOUD, Joseph.—Experiments in Palladium found combined with Pure Gold ..... VI. 407
COLLIN, Rev. D. N.—Introduction to Vol. 3d ..... III. 1
Description of a Machine for Saving Persons from the Upper Stories of a House on Fire ..... IV. 143
Philological View of some very Ancient Words in Several Languages ..... IV. 476
Description of a Speedy Elevator ..... IV. 519
Cold, Extreme, at Hallowell, Mass., in 1807, Letter Relative to. VI. 401
Committee on Husbandry ; Observations on the fly Weevil .... I. 287
CONOVER, S. F., M.D.—An Essay on the Vermilion Color of the Blood, and on the Different Colors of the Metallic Oxides, with an Application of these Principles to the Arts ..... VI. 247
COOKE, John.—A New Standard for Weights and Measures... III. 328
COULTER, Thos.—Method of Cultivating Peach Trees with a View to Prevent their Premature Decay ..... V. 327
COXE, John Redman, M.D.—Inquiry into the Comparative Effects of the Opium Officinarum Extracted from the *Papaver somniferum* or White Poppy, and that procured from the *Lactuca sativa* ..... IV. 387
Currant-Wine, Letter on the Manufacture of ..... I. 317
CURRIE, William.—On the Insalubrity of Flat and Marshy Situations ; and Directions for Preventing or Correcting the Effects thereof ..... IV. 127
DE BEAUVOIS.—First Memoir of Observations on Plants denominated *Cryptogamick* ..... III. 202
On a New Species of Siren ..... IV. 277
On Amphibia ..... IV. 362
Memoir on a New Plant growing in Pennsylvania ..... IV. 173
DE FERRER, Jos. Joaquin.—Astronomical Observations * * for determining the Geographical position of various VI. 158
places in North America ..... VI. 221
Observations on Solar Eclipse June 16, 1806 ..... VI. 264, 293
Astronomical Observations at Havana, 1809 ..... VI. 428
Notes with Corrections to be applied to the Geographical Situations in Vol. VI ..... VI. 360
Memoir on the Occultation of Aldebaran by the Moon, October 21, 1793 ..... VI. 213
Observations on the Comet of September, 1807, in the Island of Cuba ..... VI. 345
DE GRANCHAIN, M.—Observations on a Solar and Lunar Eclipse ..... II. 239
DES LOZIERS, Baudry.—Memoir on Animal Cotton or the Insect fly Carrier ..... V. 150

Deaths and Diseases in the City and Liberties of Philadelphia for 1807–8 ..... VI. 403
DE NEMOURS, Dupont.—Sur la Théorie des Vents ..... VI. 32
Sur les Vegetaux, les Polypes et les Insectes ..... V. 104
DE WITT, Simeon.—Observation on Solar Eclipse of June 16, 1806 ..... VI. 300
DE NORMANDIE, Dr. John.—Analysis of the Chalybeate Waters of Bristol, Pennsylvania ..... I. 368
Description of a Machine for Cutting Files ..... I. 365
DEVEZE, J.—New Method of Treating the Effusion which collects under the Skull after Fractures of the Head .. IV. 433
Directions for Putting up Seeds, &c., &c., for being transported to foreign countries ..... I. 330
DUNBAR, William.—Account of the Language of Signs among certain North American Indians ..... VI. 1
Meteorological Observations for one year from Jan. 31, 1800, made at the forest four and a half miles northeast of the Mississippi, Lat. 31° 28′, N. Long. 91° 30′ * * .... VI. 9
Singular Phenomena seen at Baton Rouge ..... VI. 25
On Finding the Longitude from the Moon's Meridian Altitude ..... VI. 277
On Fossil Bones found in Louisiana, and Lunar Rainbows. VI. 46
Meteorological Observations by ..... VI. 43, 188, 191
Description of the Delta of the Mississippi ..... VI. 165
Observations on the Eclipse of the Sun, June 16, 1806 ..... VI. 260
Observations on Comet, 1807–8 ..... VI. 368
DURALDE, Martin.—Fossil Bones found in the country of Opelousas ..... VI. 55
ELLICOTT, A.—Observations made at Lake Erie on that singular phenomena, by seamen termed *looming* ..... III. 62
Accurate determination of the Right Ascension and Declination of β. Bootes and the Pole Star ..... III. 116
Astronomical Observations ..... IV. 32, 224, 231, 447
Theory and Method of Calculating the Aberration of the Stars, the Nutation of the Earth's Axis and the Semiannual Equation IV. 5. Method of Calculating the Eccentric Anomaly of the Planets ..... IV. 67
Astronomical and Thermometrical Observations at the confluence of the Mississippi and Ohio rivers ..... V. 162
Do. made on the Boundary between the United States and his Catholic Majesty ..... V. 203
Extraordinary flight of Meteors ..... VI. 28
Short and Easy Rule for finding the Equation for the change of the Sun's declination when equal Altitudes are used to regulate a Clock or other Timekeeper ..... VI. 26
Astronomical Observations at Lancaster ..... VI. 61, 113, 233

ELLICOTT, A.—Observations of the Solar Eclipse June 16, 1806 ..... VI. 255
ELLIS, John.—Method of Preventing Premature Decay of Peach Trees ..... V. 325
Essay tending to improve intelligible signals and to discover a Universal Language ..... IV. 162
EWING, Rev. John.—Calculation of the Transit of Venus to occur June 3, 1769 ..... I. 5
Account of the same at Philadelphia ..... I. 39
Improvement in the Construction of Godfrey's Quadrant ... I. 126
FLAGG, Henry Collins.—Observations on the Numb Fish or Torporific Eel ..... II. 170
FRANKLIN, Benjamin.—Letter on Causes and Cure of Smoky Chimneys ..... II. 1
Description of a New Stove for Burning Pit Coal ..... II. 57
Letter on a slowly sensible Hygrometer ..... II. 51
Letter containing Sundry Maritime Observations ..... II. 294
Conjectures concerning the Formation of the Earth ..... III. 1
New and curious theory of Light and Heat ..... III. 5
Queries Relating to Magnetism and Theory of the Earth ... III. 10
Process of making Large Sheets of Paper in the Chinese manner ..... III. 8
FRASER, Jno.—Description of a Stopper for the Openings by which the Sewers of Cities receive the Water of their Drains ..... V. 148
GARRETT, Jno.—Description of a New and Simple Nautical Chart for Working the Different Problems in Navigation ..... VI. 303
A General Method of Finding the Roots of Numeral Equations to any Degree of exactness with the Application of Logarithms to Shorten the Operation ..... VI. 391
On the Best Angles for the Sails of a Wind Mill ..... VI. 394
GILPIN, Jno.—Observations on the Annual Passage of Herrings ..... II. 236
GILPIN, Thos.—Account of a Horizontal Wind Mill ..... I. 405
GLOSTER, Dr. Archibald.—Remarkable Cure of Tetanus * * * by amazing quantities of Opium ..... I. 379
GODON, S.—Observations to serve for a Mineralogical Map of the State of Maryland ..... VI. 319
GREENWAY, Dr. Jas.—Account of the Beneficial Effects of the *Cassia Chamæcrista* in recruiting wornout Lands and in enriching such as are naturally poor ..... III. 226
Account of a Hill on the border of North Carolina, supposed to have been a Volcano ..... III. 231
Account of a Poisonous Plant growing spontaneously in the Southern part of Virginia ..... III. 234

HARE, Robt., Jr.—Account of the fusion of *Strontites* and volatilization of *Platinum*, and also of a New Arrangement of Apparatus..... VI. 99
Description of a Cock with two Perforations contributed to obviate the necessity of a Vent Peg in tapping airtight Casks..... VI. 105
HARE and **SKINNER**, (in London).—The Whole Process of the Silkworm from the Egg to the Cocoon..... II. 347
HEART, Major Jona.—Observations on the Ancient Works of Art, Native Inhabitants, &c., of the Western Country. III. 214
HECKEWELDER, J.—Remarkable Instinct of a Bird called the Nine Killer..... IV. 124
Account of the Big Naked Bear..... IV. 260
Observations on the North America Beaver..... VI. 209
HENRY, Wm.—Account of a Self-moving or Sentinel Register. I. 350
HIGGINS, Jesse.—A Method of draining Ponds in level Grounds..... III. 325
HOLLINGSWORTH, Henry.—Method of destroying Wild Garlic..... I. 311
HOPKINSON, F.—Description of a Machine for measuring a Ship's way through the Sea..... II. 159
Do. do..... III. 239
Account of Worm in a Horse's Eye..... II. 183
Improved Method of quetting a Harpsichord..... II. 185
Description of a Spring Block designed to assist a Vessel in Sailing..... III. 331
HUTCHINS, Thos.—Description of a remarkable Rock and Cascade near the Western side of the Youghiogheny River..... II. 50
JEFFERSON, Thos.—Memoir on the Discovery of certain Bones of a Quadruped of the clawed kind in the Western parts of Virginia..... IV. 246
Description of a Mould Board of least resistance..... IV. 313
JONES, Jno.—Account of a New Species of Grape Vine..... I. 406
JONES, Wm., of Philadelphia.—Correspondence with Wm. Jones, of Calcutta, relative to the principles and practice of Building in India..... VI. 375
KING, Nicholas.—Improvement in Boats for River Navigation. IV. 298
LATROBE, B. Henry.—On the Sandhills of Cape Henry, Virginia..... IV. 439
Supplement to do..... IV. 444
Description of the *Clupea tyrannus* and *Oniscus pregustator*. V. 77
On a Species of *Sphex* inhabiting Virginia and Pennsylvania. VI. 73
Improvements in America in the Construction of Steam Engines..... VI. 89

LATROBE, B. Henry.—Account of the Freestone Quarries on the Potomac and Rappahannock Rivers..... VI. 283
Observations on Building in India..... VI. 384
LE ROY, Mons.—Observations on the Construction of Hospitals..... III. 348
LORIMER, Dr.—Letter on Western Florida..... I. 320
MACLURE, Wm.—Observations on the Geology of the United States..... VI. 411
McCAUSLIN, Robt., M.D.—Account of an Earthy Substance found near the Falls of Niagara and vulgarly called the Spray of the Falls; together with some remarks on the Falls..... III. 17
MADISON, Rev. Jas.—Meteorological Observations..... II. 123
Experiments and Observations on what are commonly called Sweet Springs..... II. 197
Observations on a Lunar Eclipse, November 2, 1789 and the passage of Mercury over the Sun's Disk, November 5, 1789, made at the University of William and Mary..... III. 150
Experiments in Magnetism..... IV. 323
Letter on the supposed Fortifications of the Western Country..... VI. 132
MARTIN, Hugh.—Account of the principal Dyes employed by the North American Indians..... III. 223
MASKELYNE, Rev. Nevil.—Account of the Transit of Venus, June 3, 1769, as observed at Greenwich..... I. 100
Do. as observed at Hudson Bay, &c..... I. 111
MAYER.—Observationes Astronomicæ..... II. 217
MITCHILL, Sam. L.—Observations on the Soda, Magnesia and Lime in the Water of the Ocean, &c., &c., &c.... V. 139
MORGAN, Dr. John.—Account of a Motley-colored or Pyed Negro Girl and Mulatto Boy exhibited before the Society, May, 1784..... II. 392
Communications on the Medical History of the *Cortex ruber* or Red Bark..... II. 289
The Art of making Anatomical Preparations by corrosion.. II. 366
Living Snake in a Living Horse's Eye and other unusual production of Animals..... II. 383
MOREL, Jno.—Oil from Bene Seed..... I. 309
MUGFORD'S Temporary Rudder, Account and Description of. VI. 203
MUHLENBERG, H.—Index Floræ Lancastriensis..... III. 157
Supplementum Floræ Lancastriensis..... IV. 235
NANCARROW, John.—Calculations relating to Grist and Saw Mills, &c..... IV. 348
New Machine for Steering Vessels..... VI. 428
NICOLA, L.—Easy Method of Preserving Subjects in Spirits.. I. 314

NUTTER, Peter.—Method of Preserving Pease from Worms.. I. 313
Observations on the Solar Eclipse of June 16, 1806, made at Bowdoin College, Maine..... VI. 275
Made by Simeon de Witt of Albany, New York..... VI. 300
OLIVER, Andrew.—Theory of Water Spouts..... II. 101
Do. Thunder and Lightning Storms..... II. 74
OTTO, Dr.—Oil from Sunflower Seed..... I. 304
Letter and Memoir on the Discovery of America..... II. 263
PAGE, John.—Letter concerning a remarkable Meteor seen in Virginia and Pennsylvania..... II. 173
Papers relating to a Canal between the Delaware and Chesapeake Bays..... I. 357
PATTERSON, R.—Easy and Accurate Method of finding a True Meridian Line and thence the variation of the Compass..... II. 251
New Notation of Music..... III. 139
On a Phenomenon observed by Dr. Franklin and not accounted for..... III. 13
Improvement on Metallic Conductors or Lightning Rods... III. 321
Easy and accurate Method of adjusting the Glasses of Hadley's Quadrant on Land for Back-observation..... IV. 154
Improved Method of Projecting and Measuring Plane Angles..... VI. 29
PATTERSON and **ELLICOTT**.—Observations on a Lunar Eclipse, September 21, 1801..... VI. 59
Astronomical Observations at Lancaster, Pennsylvania.... VI. 61
PEALE, C. W. and **RAPHÆLE**.—Improvements in the Common Fire-Place..... V. 320
PERKINS, Jno., M.D.—Conjectures concerning Wind and Water-spouts, Tornadoes and Hurricanes..... II. 335
PRIESTLEY, Dr. J.—Experiments and Observations relating to the Analysis of Atmospherical Air..... IV. 1
Experiments relating to the generation of Air from Water. IV. 11
Appendix to the two articles in this Volume (IV)..... IV. 382
Experiments on the transmission of Acids in vapor over several substances in an Earthen Tube..... V. 1
Experiments relating to the change of place in different kinds of Air through several interposing substances... V. 14
Experiments relating to the Absorption of Air by Water.. V. 21
Miscellaneous experiments relating to the doctrine of Phlogiston..... V. 28
Experiments on the production of Air by the Freezing of Water..... V. 36
Experiments on Air exposed to heat in Metallic Tubes..... V. 42
Observations and Experiments on equivocal or spontaneous Generation..... VI. 119

PRIESTLEY, Dr. J.—Observations on the Discovery of Nitre in Common Salt which had been previously mixed with Snow ..... VI. 129

ROBINSON, Ebenezer.—An easy and expeditious Method of dissipating the Noxious Vapours commonly found in Wells and other subterraneous places. ..... III. 324

ROMANS, B.—Letter on an Improved Sea-compass..... II. 396

RITTENHOUSE, D.—Description of an Orrery..... I. 1

Calculation of the Transit of Venus to occur June 3, 1769.. I. 4

Observations on the Comet of June 1770 ..... I. 144

Method of finding the Meridian passage of the Sun per clock without the help of Equation Tables..... I. 155

Explanation of an Optical Delusion ..... II. 37

Letter to John Page on a Meteor. ..... II. 175

Experiments in Magnetism ..... II. 178

Observations on a Comet lately discovered..... II. 195

Solution of an Optical Problem prepared by Mr. Hopkinson. II. 201

New Method of placing a Meridian Mark. ..... II. 181

Astronomical Observations ..... II. 260

Account of a Comet..... III. 261

A Method of finding the sum of the several Powers of the Sines, &c. ..... III. 155

Expansion of Wood by Heat..... IV. 29

To raise the Logarithm of any number indefinitely..... IV. 69

To determine the true place of a Planet in an Elliptical Orbit directly from the Mean Anomaly by Converging Series ..... IV. 21

On Improvement of Time-Keepers. ..... IV. 26

RITTENHOUSE, D. and **JONES**, John.—Account of several Houses in Philadelphia, struck by Lightning on June 7, 1789 ..... III. 119

RITTENHOUSE, D. and **HOPKINSON**, F.—Account of the Effects of a Stroke of Lightning on a House furnished with two Conductors ..... III. 122

RUSH, Benjamin, M.D.—Account of the Effects of Strammonium (*sic*) * *..... I. 384

Enquiry into the cause of the increase of Bilious and Intermitting Fevers in Pennsylvania, with hints for preventing them. ..... II. 206

Account of Dr. Hugh Martin's Cancer Powder, with brief Observations on Cancers..... II. 212

Observations on the cause and cure of Tetanus..... II. 225

Account of the Sugar Maple Tree of the United States, &c. III. 64

The black color of Negroes is derived from the Leprosy... IV. 289

RUSTON, Dr.—Letter concerning Chimneys. ..... II. 231

SARGENT, Col. Winthrop.—Account of certain articles taken out of an Ancient Tumulus or Grave in the Western Country..... IV. 177
Drawing of some Utensils, &c., taken from an old Indian Grave at Cincinnati * * August 30, 1794..... IV. 179
SEYBERT, Adam.—Experiments and Observations on Land and Sea Air..... IV. 262
Experiments and Observations on the Atmosphere of Marshes..... IV. 415
SILLIMAN, Ben. and **KINGSLEY**, Jas. L.—Memoir on the Meteoric Stones which fell * * in the State of Connecticut, December 14, 1807..... VI. 323
SMITH, Thos. P.—Account of a Kettle for boiling Inflammable Fluids..... IV. 431
Crystallized Basalts found in Pennsylvania..... IV. 445
SMITH, Wm., D.D.—Terrestrial Measurement between the Observatories of Norriton and Philadelphia, with the difference of latitude and longitude thence deduced. .. I. 114
Transit of Mercury as observed at Norriton..... I. 158
Report of the Committee on the Transit of Venus, June 3, 1769..... I. 8
Sun's parallax as found by the Transit of Venus, 1769..... I. 162
STIRLING, Wm., Earl of.—Account of the Comet of June 1770..... I. 152
STRICKLAND, Wm.—On the use of the Thermometer in Navigation..... V. 90
THOMAS, Mr.—Account of some newly discovered Islands and Shoals in the Indian Seas..... VI. 87
THORNTON, Wm.—Cadmus, or a treatise on the Elements of Written Language * * * with an Essay on the mode of teaching the Deaf and Dumb to speak..... III. 262
TURNER, Geo.—Memoir on Mammoth Bones..... IV. 510
Remarks upon articles found in an Indian Tumulus at Cincinnati..... V. 74
WARING, W.—Observations on the theory of Water Mills. III. 144, 319
Investigation of the power of *Barker's Mill* as improved by Jas. Rumsay..... III. 185
WATKINS, Jno., M.D.—Natural History of the Northerly parts of Louisiana..... VI. 69
WELLS, Rd.—Machine for pumping Vessels at Sea without the labor of Men..... I. 353
WEST, Ben.—Account of the Transit of Venus, June 3, 1769, at Providence, Rhode Island..... I. 91
WILLIAMS, Jonathan.—On the use of the Thermometer in discovering Banks, Soundings, &c..... III. 82
On the Claying of Sugar..... VI. 82

WILLIAMS, Rev. Sam.—Experiments on Evaporation and Meteorological Observations at Bradfield, N. E..... II. 118
Account of the Transit of Venus over the Sun, June 1769 as observed at Newbury in Massachusetts..... II. 246
Magnetic Observations at the University of Cambridge, Massachusetts, in the year 1783..... III. 115
WILLIAMSON, Hugh, M.D.—Essay on Comets, &c..... I. 133
Attempt to account for the change of Climate observed in the Middle Colonies of North America..... I. 336
On the *Ephoron Leukon* or White Fly, of the Passaic River.. V. 71
WILSON, Rev. Matthew.—Observations on the severity of the Winter 1779-1780..... III. 326
WISTAR, C., M. D.—Experiments and Observations on Evaporation in Cold Air..... III. 125
Experiments on Evaporation..... IV. 72
Description of the Mammoth Bones..... IV. 526
WOODHOUSE, Jas.—Answer to Priestley on Phlogiston, &c. IV. 452
WRIGHT, Thos.—Most easy and practicable mode of drying up the Marshes of the maritime Parts of North America. IV. 243
WRIGHT, Wm., M.D.—Antiseptic virtues of Vegetable Acid and Marine Salt combined, in various disorders accompanied with Putridity..... II. 284

TRANSACTIONS. [NEW SERIES.]

VOLS. I, II, III, IV, V, VI, VII, VIII, IX, X, XI, XII, XIII, XIV, XV.

Abstract of Meteorological Tables in the possession of the American Philosophical Society..... VI. 395
ADRAIN, Robt.—Investigation of the Figure of the Earth and of the Gravity in different latitudes..... I. 119
Research concerning the Mean Diameter of the Earth.... I. 353
ADAMSON, J. C., D.D.—Notes on certain Modes of Measuring Minute Intervals of Time..... XI. 109
ALLEN, Harrison, M.D.—Analysis of the Life-form in Art... XV. 279
ANDERSON, Henry James.—On the motion of solids on surfaces in the two Hypotheses of perfect sliding and perfect rolling..... III. 315
AUSTIN, Jas.—Easy solution of a useful problem in Arithmetic..... I. 181
BACHE, A. D.—On the Diurnal Variation of the Needle..... V. 1
Observations to determine the Magnetic Dip at Baltimore, Philadelphia, New York, West Point, Providence, Springfield and Albany..... V. 209

BACHE, A. D.—Notes and Diagrams Illustrative of the directions of the forces acting and near the surface of the Earth in different parts of the Brunswick Tornado of June 19, 1835 ..... V. 407

On the Relative Horizontal Intensities of Terrestrial Magnetism at several places in the United States with the investigation of Corrections for Temperature and comparisons of the Methods of Oscillation in full and rarefied Air ..... V. 427

Observations of the Magnetic Intensity at twenty-one stations in Europe ..... VII. 75

BACHMAN, Jno.—Observations on the change of Color in Birds and Quadrupeds ..... VI. 197

BALDWIN, Wm., M.D.—Account of the North American Species of *Cyperus* discovered in the State of Georgia; and of four Species of *Killingia* found on the Brazilian Coast and on the Rio de la Plata in South America .... II. 167

BARTLETT, Wm. H. C.—Account of the Observatory and Instruments of the United States Military Academy at West Point; with Observations on the Comet of 1843. VIII. 191

BETTÈLHEIM. Meteorological Observations Napa-Keang (Loo-Choo), 1848, 1849. ..... X. 245

BLACKWELL, Thos. Evans.—On the Hydrology of the Basin of the River Saint Lawrence ..... XIII. 249

BONAPARTE, Charles Lucien.—General Observations on the Birds of the genus *Tetrao;* with a Synopsis of the Species hitherto known. ..... III. 383

BONNYCASTLE, Chs.—On a new principle in regard to the power of fluids in motion to produce Rupture of the Vessels which contain them; and on the distinction between accumulative and instantaneous pressure..... VII. 113

On the insufficiency of Taylor's theorem * * objections to the Demonstrations of Passon and Cauchy * * A new investigation of the development and continuity of Fractions ..... VII. 217

BOOTH, Jas. C. and **BOYÈ**, Martin.—On the Conversion of Benzoic into Hippuric Acid. ..... VIII. 185

BORDEN, Simeon.—Account of a Trigonometrical Survey of Massachusetts by Simeon Borden, Esqre., with a comparison of its results with those obtained from Astronomical Observations by Robert Treat Paine, Esqre... IX. 33

BOYÈ, M. H.—Upon a New Compound of the Deuto-Chloride of Platinum, Nitric Oxide and Chlorohydric Acid..... VII. 59

BRACKENRIDGE, H. H.—On the Population and Tumuli of the Aborigines of North America..... I. 151

BRINTON, D. G.—The Arawak Language of Guiana in its Linguistic and Ethnological relations..... XIV. 427
BULL, Marcus.—Experiments to determine the comparative quantities of heat evolved in the combustion of the principal varieties of Wood and Coal used in the United States for fuel, &c., &c. ..... III. 1
CHASE, P. E.—Intellectual Symbolism..... XII. 463
On the Comparative Etymology of the Yoruba Language.. XIII. 35
On the numerical relations of Gravity and Magnetism..... XIII. 117
CLOUD, Jos.—Experiments on Crude Platinum and a new process of separating Palladium and Rhodium for it.. I. 161
An attempt to ascertain the fusing temperature of Metals.. I. 167
Inquiry into the causes why the Metals in a solid state appear to be specifically lighter than when they are in a state of fusion ..... I. 170
Collection of Observations on the Solar Eclipse of November 30, 1834, made at Philadelphia, Haverford, West Hills, Baltimore, the University of Virginia, Norfolk, Cincinnati and Nashville..... V. 233
COLLIN, N.—Observations made at an early period on the Climate of the Country about the River Delaware, collected from the Records of the Swedish Colony..... I. 340
COOPER, Thos.—Analysis of the Blue Iron Earth of New Jersey..... I. 193
On Bleaching..... I. 317
COPE.—Synopsis of the Cyprinidæ of Pennsylvania..... XIII. 351
Supplement to some new Species of American and African Fishes XIII..... XIII. 400
Contribution to the Ichthyology of the Lesser Antilles.... XIV. 445
On the Extinct Batrachia and Reptilia of North America.. XIV. 1
Supplement to do..... XV. 261
CORREA DE SERRA, J.—Observations and conjectures on the Formation and Nature of the Soil of Kentucky... I. 174
COURTENAY, Edward H.—On the difference of Longitude of several places in the United States as determined by Observations of the Solar Eclipse of November 30, 1834..... V. 343
DE BUTTS, Elisha, M.D.—Account of an improvement made on the differential Thermometer of Mr. Leslie..... I. 301
DEL RIO, Andres.—Silver Ores reduced by the Method of Becquerel..... IV. 60
On the Crystals developed in Vermuculite by Heat..... V. 137
DE SCHWEINITZ, L. D.—Synopsis Fungorum in America Boreali media degentium..... IV. 141
DORSEY, Jno. Syng., M.D.—Account of a large Wen successfully extirpated ..... I. 298

DU PONCEAU.—English Phonology..... I. 228
A Grammar of the Language of the Lenni Lenape or Delaware Indians. Translated from the German MS. of the late Rev. D. Zeisberger. ..... III. 65
Letter on the Chinese system of writing ..... VII. 7
DURAND, E.—Biography of F. A. Michaux, XI, *xvii*. Sketch of the Botany of the Basin of the Great Salt Lake of Utah..... XI. 155
ELLICOTT.—Astronomical Observations at Lancaster. ..... I. 93
ESPY, Jas. P.—Deductions from Observations made and facts collected on the path of the Brunswick Spout of June 19, 1835. ..... V. 421
FORSHEY, C. G.—Observations upon the Meteors of August. VII. 265
FRAZER, P., Jr.—Smelting Process at Freiburg..... XIV. 405
GABB, W. M.—On the Topography and Geology of Santo Domingo ..... XV. 49
GIBSON, Jno. B.—Observations on the Trap Rocks of the Connewago Hills near Middletown, Dauphin County, and of the Stony Ridge near Carlisle, Cumberland County, Pennsylvania..... II. 156
GILLIS, Lieut. J. M.—On the Longitude of Washington computed from the Moon-culminations observed during years 1839-1842 inclusive..... X. 211
GILMER, Francis Wm.—On the Geological Formation of the Natural Bridge of Virginia..... I. 187
GODMAN, Jno. D., M.D.—Description of a New Genus and Species of Extinct Mammiferous Quadruped. ..... III. 478
GRAHAM, Major Jas. D.—Observations of the Magnetic Dip made at several positions, chiefly on the Southwestern and Northeastern frontiers of the United States, and of the Magnetic declination at the positions on the River Sabine in 1840. ..... IX. 329
GUMMERE, Jno.—On the Construction of Eclipses of the Sun III. 467
Practical rule for calculating from the Elements in the Nautical Almanac the circumstances of an Eclipse of the Sun for a particular place. ..... V. 297
GUTZLAFF, Chas.—Letter on the Chinese system of writing. VII. 7
HALDEMAN, S. S.—Materials towards a History of the Coleoptera Longicorna of the United States .... X. 27
Analytic Orthography; an investigation of the sounds of the voice and their Alphabetic notation..... XI. 259
On the Contents of a Rock Retreat in Southeastern Pennsylvania..... XV. 351
HALL, Jas.—Notes upon the Geology of some portions of Minnesota from St. Paul to the Western part of the State..... XIII. 329

HARE, CLARK and **BOYÉ**, Martin.—On the Perchlorate of the Oxide of Ethule or Perchloric Ether. ..... VIII. 73

HARE, Robt., M.D.—Observations on Sulphurous Ether and Sulphate of Etherine (the true Sulphurous Ether).... V. 347

On the causes of the Tornado or Water Spout..... V. 375

Of the reaction of the Essential Oils with Sulphurous Acid as evolved in union with Ether in the process of Etherification or otherwise..... V. 355

Process for Nitric Ether or Sweet Spirits of Nitre by means of an approved apparatus..... V. 363

Description of an Electrical Machine with a plate four feet in diameter * * also of a Battery Discharger * * and some Observations on the causes of the diversity in the length of the sparks, erroneously distinguished by the terms Positive and Negative..... ..... V. 365

On Sassa Rubrin, a resin evolved by Sulphuric Acid from Oil of Sassafras, which is remarkable for its efficacy in reddening that Acid in its concentrated state. ..... V. 360

Description of an Air Pump of a new construction, which acts either as an Air Pump or a Condenser or as both, enabling the operator to exhaust, to condense, to transfer a Gas from one cavity to another, or to pass it through a liquid..... V. 385

Of an Improved Barometer, Gage Eudiometer. .... V. 385

On the cause of the Collapse of a Reservoir while apparently subjected within to a great pressure from a head of water V. 953

Sundry Improvements in Apparatus for Manipulation ..... V. 399

Account of a Tornado which, towards the end of August, 1836, passed over the suburbs of Providence, Rhode Island, and afterwards over a part of the Village of Somerset. Also an extract from a Letter on the same subject from Zachariah Allen, Esqre., of the City of Providence..... VI. 297

Engraving and description of an Apparatus for the decomposition and recomposition of Water employed in the Laboratory of the Medical Department of the University of Pennsylvania..... VI. 339

Improved Process for obtaining Potassium. ..... VI. 341

Engraving and description of a Rotary Multiplier or one in which one or more needles are made to revolve by a Galvanic Current..... VI. 343

On the extrication of the Alkalifiable Metals, Barium, Strontium and Calcium..... VII. 31

Description of an Apparatus for deflagrating Carburets, &c., in vacuo or in an atmosphere of Hydrogen, with an account of some results obtained by these and other means..... VII. 53

HARE, Robt., M.D.—Engraving and description of an Apparatus and Process for the rapid congelation of Water by the explosive evolution of Ethereal Vapor consequent to the combined influence of Rarefaction and the absorbing power of Sulphuric Acid..... VII. 215
On the change effected in the Nitrates of Potash and Soda by the limited application of heat with a view to obtaining pure Oxygen, by which they are only partially converted into Hyponitrates, &c., &c. ..... VII. 277
HAYDEN, F. V.—Geological Sketch of the Estuary and Fresh-Water Deposits of the Bad Lands of the Indian Territory..... XI. 123
On the Geology and Natural History of the Upper Missouri..... XII. 1
On the Ethnology and Philology of the Indian Tribes of the Missouri Valley..... XII. 231
HALLOWELL, Edward, M.D.—On a New Genus of *Boidæ* from Cuba..... XI. 65
Some New and Rare Species of *Scincidæ* in the Collection of the Academy of Natural Sciences, Philadelphia.... XI. 71
HAMILTON, John.—Tables of Observations on the Winds, the Currents, the Gulf Stream, the Comparative Temperature of the Air and Water, &c., made on the North Atlantic Ocean during twenty-six Voyages to and from Europe, &c., &c..... II. 140
HARLAN, R., M.D.—Experiments made on the Poison of the Rattlesnake, in which the Powers of the *Hieraceum venosum* as a Specific are tested; together with some III. 300
Anatomical Observations on this Animal..... III. 400
Description of a New Genus of the Species *Astacus*..... III. 464
Notice of an Anatomical Peculiarity Observed in the Structure of the Condor of the Andes (*Vultur gryphus* Linn.)..... III. 466
Description of a Species of Orang from North-east Province of British East India, lately the Kingdom of Assam..... IV. 52
Fossil Bones found in the Tertiary Formation of Louisiana. IV. 397
Discovery of the Remains of the Ichthyosaurus in Missouri. IV. 405
HASSLER, F. R.—Pyrometrical Experiments made at Newark, N. J., April, 1817..... I. 210
Papers on Various Subjects Connected with the Survey of the Coast of the United States..... I. 232
I. 420
HAYS, Isaac, M.D.—Descriptions of the Inferior Maxillary Bones of the Mastodons in the Cabinet of the American Philosophical Society, with Remarks on the Genus Tetracaulodon..... IV. 317

HAYS, Isaac, M.D.—Description of a Fragment of the Head of a New Fossil Animal Discovered in a Marl Pit at Moorestown, N. J..... III. 471

HECKEWELDER, John.—Names given by the Lenni Lenape, or Delaware Indians to Rivers, Streams, Places, &c., in Pennsylvania, New Jersey, Maryland and Virginia, &c., &c..... IV. 351

HENRY, Jos.—Contribution to Electricity and Magnetism. No. 1, Description of a Galvanic Battery for Producing Electricity of Different Intensities..... V. 217

Contribution to Electricity and Magnetism. No. 2, On the Influence of a Spiral Conductor in Increasing the Intensity of Electricity from a Galvanic Arrangement of a Single Pair..... V. 223

Contribution to Electricity and Magnetism. No. 3, On Electro-dynamic Induction..... VI. 303

Contribution to Electricity and Magnetism. No. 4, On Electro-dynamic Induction..... VIII. 1

HENTZ, N. M.—Observations on the Anatomy and Physiology of the Alligator of North America (*Lacerta alligator* Gmel., *Crocodilus lucius* Cuvier..... II. 216

Description of eleven New Species of North American Insects..... III. 253

Remarks on the Use of the Maxillæ in Coleopterous Insects with an Account of Two Specimens of the Family Telephoridæ, &c., &c..... III. 458

HODGSON, W. B.—Grammatical Sketch and Specimens of the Berber Language; preceded by four letters on Berber Etymologies..... IV. 1

HOPKINSON, J. P., M.D., and **PANCOAST**, Joseph, M.D.—On the Visceral Anatomy of the Python (Cuvier) described by Dandier as the *Boa reticulata*..... V. 121

HORN, George H., M.D.—Revision of the Tenebrionidæ of America, north of Mexico..... XIV. 253

HORNER, W. E., M.D.—Remarks on the Dental System of the Mastodon, with an account of some Lower Jaws in Mr. Koch's Collection, St. Louis, Missouri, where there is a solitary tusk on the right side..... VIII. 53

HORNER, W. E., M.D., and **HAYS**, Isaac, M.D.—Description of an entire Head and various other Bones of the Mastodon..... VIII. 37

JAHN, Dr. G. A.—De Calculo Eclipsum Besseliano Commentatio..... X. 183

JAMES, E. P.—Catalogue of Plants collected during a journey to and from the Rocky Mountains during the summer of 1820..... II. 172

JAMES, E. P.—Remarks on the Sandstone and Floetz Trap Formations of the Valley of the Mississippi..... II. 191
JAMES, Thomas P.—On New Mosses..... XIII. 105
JONES, William.—Memoir on Leaden Cartridges..... I. 137
JOSLIN, Benjamin F., M.D.—On Irradiation..... IV. 340
KENDALL, E. O.—On the Longitude of several places in the United States as deduced from the Observations of the Solar Eclipse of September 18, 1838..... VII. 67
LAMBERT, William.—Abstract of Calculations to ascertain the Longitude of the Capitol in the City of Washington from Greenwich Observatory..... I. 103
LEA, Henry C.—Description of some new Fossil Shells from the Tertiary of Petersburg, Virginia..... VIII. 229
LEA, Isaac.—Description of new Fresh Water and Land Shells.....VI. 1, VIII, 163, IX, 1, 275
On the *Patella amœna* of Say..... VII. 73
Notice of the Oölitic Formation in America, with Descriptions of its Organic Remains..... VII. 251
Description of nineteen new Species of Colimacea..... VII. 455
Description of new Fresh-water and Land Shells..... X. 67
Species Family *Unionidæ*..... X. 253
Genus (Basistoma) of the Family Melamana..... X. 295
New Species of Helix from California, and a new characteristic form of certain American Colimaceæ..... X. 303
Fossil Footmarks on the Red Sandstones of Pottsville, Schuylkill County, Pennsylvania..... X. 307
Description of six new species of the genus Unio, embracing the Anatomy of the Oviduct of one of them, &c., &c... III. 259
Description of a new Genus of the Family Naiades * * with Observations on some of the characters of the Naiades..... III. 403
Observations on the Naiades and Descriptions of new Species of that and other Families..... IV. 63
Description of a new genus of the Family Melamana of Lamarck..... IV. 63
Observations on the Naiades and Descriptions of new Species of that and other Familes..... V. 23
LECONTE, John L.—Notes on the Classification of the *Carabidæ* of the United States..... X. 363
Revision of the *Elateridæ* of the United States..... X. 405
Revision of the *Cicindelæ* of the United States..... XI. 27
Revision of the *Buprestidæ*..... XI. 187
LEIDY, Joseph.—On the Organization of the genus Gregarina of Dufour..... X. 233
Observations on *Nematoidea imperfecta* and Descriptions of three Parasitic infusions..... X. 241

LEIDY, Joseph.—Descriptions of an Extinct Species American Lion, *Felis atrox*..... X. 319
Memoir on the Extinct *Dicotylinæ* of America..... X. 323
Notice of the Remains of the Walrus discovered on the Coast of the United States..... XI. 83
Remains of Fishes from the Carboniferous Limestone of Illinois and Missouri..... XI. 87
Remarks on Saurocephalus and its Allies..... XI. 91
Remarks on the Structure of the Feet of the Megalonyx... XI. 107
Extinct Vertebrata from the Judith River and Great Lignite Formations of Nebraska..... XI. 139
LESLEY, J. P.—Notes on a Map intended to Illustrate Five Types of Earth Surface in the United States between Connecticut and the Atlantic..... XIII. 307
LESQUEREUX, Leo.—On California Mosses..... XIII. 1
Fucoides in the Coal Formation..... XIII. 313
Forest Plants from the Tertiary of the State of Mississippi. XIII. 411
LE SUEUR, C. A.—Descriptions of Several Species of *Chondropterigious* Fishes of North America, with their several varieties..... I. 383
LOCKE, John, M.D.—On the Magnetic Dip at several places in the State of Ohio, and on the Relative Horizontal and Magnetic Intensities of Cincinnati and London..... VI. 267
Observations made in the years 1838-9, 40, 1, 2 and 3 to determine the Magnetical Dip and Intensity of Magnetic Force..... VIII. 283
LONGSTRETH, Miers Fisher.—On the Accuracy of the Tabular Longitude of the Moon to be obtained by the Construction of New Lunar Tables..... X. 225
LOOMIS, E.—Observations to determine the Magnetic Dip at various places in Ohio and Michigan..... VII. 1
Do. at various places in the United States..... VIII. 61
Astronomical Observations made at Hudson Observatory * * with some Account of the Building and Instruments..... VII. 43
Astronomical Observations at Hudson Observatory..... VIII. 141
On the Storm which was experienced throughout the United States about the 20th of December, 1836..... VII. 125
Supplement to same..... VIII. 305
Additional Observations on the Magnetic Dip in the United States..... VIII. 101
On Two Storms which were experienced throughout the United States in the month of February, 1842..... VIII. 285
Observations of the Magnetic Dip of the United States..... VIII. 161
Astronomical Observations at Hudson Observatory..... XI. 181
X. 1

LYMAN, Benjamin Smith.—Topography of the Punjaub Oil Region ..... XV. 1
The Staley's Creek and Nick's Creek Iron Ore Region.... XV. 33
LYON, Sidney O.—Remarks on thirteen new Species of Crinoidea from the Palæozoic Rocks of Indiana, Kentucky and Ohio, and description of certain peculiarities in the structure of the columns of *Dolatocrinus*, and their attachment to the body of the animal..... XIII. 443
MACLURE, William.—Geology of the United States..... I. 1
McILVAINE, Wm.—Memoir Explanatory of a new Perpetual Calendar, Civil and Ecclesiastical, Julian and Gregorian X. 103
MANSFIELD J.—On Vanishing Fractions ..... I. 200
MASON, E. P.—Observations on Nebulæ with a fourteen feet Reflector, made by H. L. Smith and E. P. Mason during the year 1839..... VII. 165
MEIGS, C. D., M.D.—An Account of Some Human Bones found on the Coast of Brazil near Santas..... III. 285
On the Çorpus Luteum..... X. 131
Memoir on the Reproduction of the Opossum..... X. 155
MITCHELL, S. Weir, M.D.—Experiments and Observations upon the Circulation in the Snapping Turtle (*Chelodina serpentina*), with especial reference to the pressure of the Blood in the Arteries and Veins..... XII. 219
MORRIS, Miss M. H.—On the *Cecidomyia destructor* or Hessian Fly..... VIII. 49
MORTON, Samuel George, M.D.—Observations on Egyptian Ethnography derived from Anatomy, History and the Monuments..... VIII. 93
NAXERA, Emanuel.—De lingua Othomitorum Dissertatio... V. 249
NICKLIN, Philip H.—Conchological Observations on Lamarck's Family of Naiades..... III. 395
NICOLLETT, J. N.—Astronomical Observations made at several places in the United States..... VIII. 307
Observations on the Magnetic Dip made in the United States in 1841..... VIII. 317
NULTY, Eugenius.—Solution of a General Case of the Simple Pendulum..... II. 466
A Remarkable Arrangement of Numbers Constituting a Magic Cyclovolute..... V. 205
New Formulæ Relative to Comets..... VI. 275
Supplementary Note on the Construction and Different Forms of the Magic Cyclovolute..... X. 17
NULTY, Owen.—Investigation of a Theorem prepared by Dr. Rittenhouse, respecting the Summation of the several Powers of the Sines; with its Application to the Problem of a Pendulum Vibrating in circular Arcs..... I. 395

NUTTALL, Thomas.—Description of a new Species of *Sarracenia*..... IV. 49
Collections toward a Flora of the Territory of Arkansas... V. 139
Descriptions of new Species and Genera of Plants in the Natural Order of the *Compositæ* collected in a Tour across the Continent to the Pacific, a Residence in Oregon and a visit to the Sandwich Islands and Upper California, during the years 1834 and 1835 ..... VII. 283
Description and Notices of new or rare Plants on the Natural Orders Lobeliaceæ, Campanulaceæ, Vacinieæ, Ericaceæ, collected in a journey over the Continent of North America, and during a visit to the Sandwich Islands and Upper California..... VIII. 251
Obituary Notice of Robert Patterson..... II. *ix*
ORD, George.—Some Observations on the Moulting of Birds.. III. 292
PARTRIDGE, A., Capt. U. S. A.—Tables of the Altitudes of Mountains in the States of New York, New Hampshire and Vermont, calculated from Barometrical and Thermometrical Observations..... I. 147
PATTERSON, Rob.—Description and Use of a Simple Appendage to the Reflecting Sector, by which it is rendered capable of measuring all possible altitudes on land by reflections from an artificial Horizon..... I. 325
Description and use of a very simple Instrument for setting up Sundials and for many other useful purposes..... I. 333
An improvement in the common Ship-pump..... I. 367
Supplement to do..... I. 427
PICKERING, Chas., M.D.—On the Geographical Distribution of Plants..... III. 274
PIERCE, Ben.—On the Perturbations of Meteors approaching near the Earth..... VIII. 83
POWERS, Pike.—Expansion of F $(x + h)$..... VIII. 155
REDFIELD, W. C.—Observations on the storm of December 15, 1839..... VIII. 77
Report of the Committee on the Solar Eclipse of May 14 and 15, 1836..... VI. 379
Report of a Committee of the American Philosophical Society on Astronomical Observations, Containing Observations made in different parts of the United States on the Solar Eclipse of February 12, 1831..... IV. 125
ROGERS, H. D.—Vide Boyé, M. H ..... VII. 59
ROGERS, W. D. and H. D.—Contributions to the Geology of the Tertiary Formations of Virginia.....VI. 347, VI. 371
Observations on the Geology of the Western Peninsula of Upper Canada and the Western part of Ohio..... VIII. 273

SAY, Thos.—Monograph of North American Insects of the genus *Cicindela* ..... I. 401
Descriptions of Insects of the families of *Carabici* and *Hydrocanthari* of Latreille inhabiting North America. II. 1
Descriptions of new North American Insects and Observations on some already described. ..... IV. 409
Continuation of same..... VI. 155
SELLERS, Nathan.—Description of a rolling Drawgate as applied to Water Mills..... I. 307
SEYBERT, Henry.—Analyses of the Chrysoberyls of Haddam and Brazil. ..... II. 116
Analyses of the Hydraulic Lime used in constructing the Erie Canal in the State of New York..... II. 229
SHALER, Wm.—Language, manners and customs of the Berbers, or Brebers of Africa. ..... II. 438
SHORT, C. W., M.D.—Description of an Indian Fort in the neighborhood of Lexington, Kentucky ..... I. 310
STEINHAUER, Rev. Henry.—Fossil reliquia of unknown Vegetables in the Coal Strata..... I. 265
STEVENSON, Jno. J.—Notes on Geology of West Virginia.. XV. 15
STOCKTON, Robt. F., Captain U. S. N.—Some results of a series of Experiments relative to different parts of Germany ..... X. 167
TAYLOR, Richard Cowling.—Notice of a Vein of Bituminous Coal recently explored in the vicinity of the Havana in the Island of Cuba..... VI. 191
Memoir of the character and prospects of the Copper region of Gibara and a sketch of the Geology of the Northeastern part of the island of Cuba..... VIII. 204
Notice of Fossil Arborescent Ferns of the family Sigillaria and other Coal plants, exhibited in the Roof and Floor of a Coal Seam in Dauphin County, Pennsylvania.... VIII. 219
TILGHMAN, R. A.—On the decomposing power of Water at high Temperatures..... X. 173
On the decomposition of the Alkaline Sulphates by Hydrochloric Acid and Chlorine ..... X. 359
TILGHMAN, Wm.—Obituary of Dr. Casper Wistar..... I. *xviii*
TROOST, Gerhard, Dr.—Description and Analysis of the Retinasphalt discovered at Cape Sable, Magothy River, Anne Arundel County, Maryland. ..... II. 110
Notice of a new Crystalline Form of the Yenite of Rhode Island. ..... II. 478
VAUGHAN, Jno.—Abstracts and results from Eight Annual Statements (1804 to 1816) published by the Board of Health, of the Deaths, with the diseases, ages, &c., in the City and Liberties of Philadelphia. ..... I. 450

WALKER, S. C.—On the Longitude of the Hall of the American Philosophical Society, deduced from an occultation of Aldebaran, observed by S. C. Walker, January 5, 1830..... V. 135
Determination of the Longitude of several stations near the Northern Boundary of Ohio from Transits of the Moon and Moon-culminating Stars observed in 1835 by Andrew Talcott, late Captain United States Engineers..... VI. 241
Researches concerning the Periodical Meteors of August and November..... VIII. 87
Investigations which led to the detection of the coincidence between the computed place of the planet Leverrier and

bone which originally form the *Sphenoidal sinuses*.... I. 371
Account of two Heads found in the Morass called the Big Bone Lick..... I. 375
Account of a case of disease in which one side of the Thorax was at rest while the other performed the motion of respiration in the usual manner..... I. 381
WOOD, Horatio C.—Contribution to the Knowledge of the Flora of the Coal period in the United States..... XIII. 341
On the Phalangia and Pedipalpa collected by Professor Orton in Western South America, with a description of New African Species..... XIII. 435
ZANTEDESCHI.—Della correlazione delle Forze chimiche colla Refrangibita delle Irradiazioni..... XI. 117

SAY, Thos.—Monograph of North American Insects of the genus *Cicindela* ..... I. 401
Descriptions of Insects of the families of *Carabici* and *Hydrocanthari* of Latreille inhabiting North America. II. 1
Descriptions of new North American Insects and Observations on some already described. ..... IV. 409
Continuation of same..... VI. 155
SELLERS, Nathan.—Description of a rolling Drawgate as applied to Water Mills..... I. 307
SEYBERT, Henry.—Analyses of the Chrysoberyls of Haddam and Brazil. ..... II. 116
Analyses of the Hydraulic Lime used in constructing the Erie Canal in the State of New York..... II. 229
SHALER, Wm.—Language, manners and customs of the

WOOD, Horatio C., Jr.—On the Myriopoda of North America..... ..... XIII. 137

high Temperatures..... X. 173
On the decomposition of the Alkaline Sulphates by Hydrochloric Acid and Chlorine .... X. 359
TILGHMAN, Wm.—Obituary of Dr. Casper Wistar..... I. *xviii*
TROOST, Gerhard, Dr.—Description and Analysis of the Retinasphalt discovered at Cape Sable, Magothy River, Anne Arundel County, Maryland. ..... II. 110
Notice of a new Crystalline Form of the Yenite of Rhode Island. ..... II. 478
VAUGHAN, Jno.—Abstracts and results from Eight Annual Statements (1804 to 1816) published by the Board of Health, of the Deaths, with the diseases, ages, &c., in the City and Liberties of Philadelphia. ..... I. 430

WALKER, S. C.—On the Longitude of the Hall of the American Philosophical Society, deduced from an occultation of Aldebaran, observed by S. C. Walker, January 5, 1830..... V. 135

Determination of the Longitude of several stations near the Northern Boundary of Ohio from Transits of the Moon and Moon-culminating Stars observed in 1835 by Andrew Talcott, late Captain United States Engineers..... VI. 241

Researches concerning the Periodical Meteors of August and November..... VIII. 87

Investigations which led to the detection of the coincidence between the computed place of the planet Leverrier and the observed place of a Star recorded by Lalande in May 1795..... X. 141

WALKER, S. C., and **KENDALL**, E. O.—Observations of Encke's Comet at the High School Observatory, March and April, 1842, with the Fraunhofer Equatorial..... VIII. 311

WALLENSTEIN, Jules de.—Mémoire pour accompagner le Tableau des Observations Météorologiques faites à Washington dépuis le 17 Avril, 1823, jusqu'an 18 Avril 1824..... II. 421

WETHERILL, C. M.—On the Neutral Sulphide of the Oxide of Ethyl and the products of its decomposition by Water..... X. 177

Chemical examination of two minerals from the neighborhood of Reading, Pennsylvania, and on the occurrence of Gold in Pennsylvania..... X. 345

On a new variety of Asphalt (Melan Asphalt)..... X. 353

WETHERILL, Charles D.—On Adipocire and its formation.. XI. 1

WILCOCKS, Alex., M.D.—Thoughts on the influence of Ether on the Solar System..... XIII. 73

WISTAR, C.—Observations on those processes of the *Ethmoid* bone which originally form the *Sphenoidal sinuses*.... I. 371

Account of two Heads found in the Morass called the Big Bone Lick..... I. 375

Account of a case of disease in which one side of the Thorax was at rest while the other performed the motion of respiration in the usual manner..... I. 381

WOOD, Horatio C.—Contribution to the Knowledge of the Flora of the Coal period in the United States..... XIII. 341

On the Phalangia and Pedipalpa collected by Professor Orton in Western South America, with a description of New African Species..... XIII. 435

ZANTEDESCHI.—Della correlazione delle Forze chimiche colla Refrangibita delle Irradiazioni..... XI. 117

REGISTER

OF

WRITTEN COMMUNICATIONS

TO THE

AMERICAN PHILOSOPHICAL SOCIETY,

PUBLISHED IN ITS PROCEEDINGS,

VOLS. I—XX,

1838–1883.

COMPILED BY HENRY PHILLIPS, JR., ONE OF THE SECRETARIES.

ACKERMAN, A.—Meteorological Register at Bois-chêne... XI. 499
ALEXANDER, S.—Aurora of September 3d, 1839..... I. 132
On Meteors..... II. 45
On Solar Eclipses..... II. 201
Physical Phenomena accompanying Solar Eclipses..... III. 183
Contribution to Astronomical Science..... IV. 216
Change in Biela's Comet..... IV. 241
Solar Eclipses, March, 1848..... V. 32
ALLEN, C.—Contributions to the Physical Geography of the United States..... XVI. 61
ALLEN, T.—Gas Wells on the Kanawha..... IV. 366
AMES, C. E.—Obituary Notice of R. W. Emerson.....XX. 496, 498
ANTHON, C. A.—On a Silver Louis of fifteen sous, struck under Louis XIV. for circulation in French America. XVI. 293
APJOHN.—Formula of..... II. 255
ASHBURNER, C. A.—Measured section Pennsylvania Palæozoic Rocks..... XVI. 519
Spouting Water Well at Wilcox, Pennsylvania..... XVII. 127
Oil Well Records in McKean and Elk Counties, Pennsylvania..... XVIII. 9
Bradford Oil Sand..... XVIII. 419
Geological Section at St. Mary's, Elk County, Pennsylvania..... XIX. 300, 337
Colorado Anthracite..... XX. 205
Bureau of Mines..... XX. 206
Estimation of Coal Areas..... XX. 232

BACHE, Major.—Magnetic Meridian..... II. 137
Coral Reefs..... II. 150
Corrosion of Cables by Sea Water..... I. 70
Survey of Sand Hook..... IV. 168
BACHE, A. D.—On the Magnetic Dip..... I. 146, 151
Magnetic Observations..... I. 185, 294
Meteors..... I. 300
Fusible Metal..... II. 42
Storms..... II. 56
Anemometer..... II. 57
Magnetic Observations.....II. 69, 83, 101, 150
Cumulus by Fire..... II. 116
Espy's Theory..... II. 147
Rain Gauge..... II. 164
Meteors..... II. 235, 267
Induction Inclinometer..... II. 237
Dew point Hygrometer..... II. 249, 252
On Apjohn's Formula..... II. 255
Magnetic Observations..... III. 90
Instrument to determine Conducting Power of Bodies for Heat..... III. 132
Magnetic Observations..... III. 175
On the Magnetic Dip..... IV. 11
Standard Weights and Measures..... IV. 159
A New Base Apparatus..... IV. 368
BACHE, F.—Naiades from Cincinnati..... V. 191
President's Address..... V. 360
Annual Address..... VI. 66
BARKER, G. F.—A New Vertical Lantern Galvanometer.. XIV. 440
Solar Eclipse of July 29, 1878..... XVIII. 103
New Standard Cell.....XX. 638, 649
Obituary Notice Henry Draper..... XX. 656
BARRETT, O., Jr.—Pipe Line Levels in Indiana County, Pennsylvania..... XVII. 145
BARTLETT, W. H. C.—Instruments used at West Point, New York..... III. 151
BELL, John.—Obituary Dr. C. D. Meigs..... XIII. 170
BETHUNE, Dr.—Observations on Ethnology..... IV. 358
BIDDLE, J. B.—Obituary Dr. Chapman..... VII. 397
BESSEL.—Motions of Procyon..... IV. 112
BLAKE, G. S.—Kabyle and Seneca Languages..... VII. 291
BLAND, T.—Physical Geography and Geology and distribution of certain Mollusca in the West Indian islands.. XII. 56
BLASIUS, W.—Meteorology and Health..... XIV. 667
Discussion of some Opinions in Meteorology..... XVI. 198
Progress of Meteorology in the last twenty-five years..XVI. 394, 395

BLASIUS, W.—Cause of the Huron disaster..... XVII. 212
Modern Meteorological Methods..... XVII. 278
BLODGETT, Lorin —Non-periodic distribution of Heat in the Atmosphere..... XIII. 138
Downward Circulation causes extreme Cold..... XIV. 150
Clays under Philadelphia..... XVI. 180
Remarks on Blasius' Opinions in Meteorology..... XVI. 205
Silver Ore from Pennsylvania..... XVII. 728
Industrial Migration..... XIX. 70
BLUNT, Edmund.—Solar Eclipses May 4, 1836, and September 18, 1838..... I. 177
BOND, Dr.—Spina Bifida..... IV. 124
BONNYCASTLE, Dr. Chas.,—Experiments on depth of the Sea..... I. 39
Fluids in Motion..... I. 196
BOOTH and **BOYÉ**.—Conversion of Benzoic Acid into Hippuric acid..... III. 129
BORDEN, Simeon.—Results Map Survey.....II. 45, 60, 101, 150
Base Line Apparatus..... II. 247
Dimensions of the Earth..... III. 130
BOYÉ and **HARE**, Clark.—Perchloric Ether..... I. 261
BOYÉ.—New Compound of Platinum..... I. 94
Analysis of Feldspar..... II. 53; 190
Perchlorate of Oxide of Methule..... II. 202
Concretion found in a Horse's Stomach..... IV. 230
Protococcus Nivalis..... V. 262
BOYÉ, M. H.—On Decay of Articles Deposited in Corner-Stones..... V. 323
Vibrations caused by Heat..... VI. 32
BRECK, S.—Continental Money.....I. 248, II. 57
BRIGGS, R.—Reserved Power in Machinery..... IX. 228
On the Screw..... IX. 278
Health and Ventilation..... X. 8
Gold Extracting Machinery..... X. 29
Pennsylvania Oil Region..... X. 109
Patent to prevent Incrustations..... X. 169
Fuel from Coal Dust..... X. 290
Construction of Domes..... X. 379
Flow of Water through an opening in a pierced plate... XVI. 310
Flow of Water through an opening..... XVII. 124
Deviating Forces of a Fly-Wheel..... XVII. 126
Dispersion of Heat generated by a Gas Burner..... XVII. 309
BRINTON, D. G.—On the Maya Language..... XI. 4
Muskokee Language..... XI. 301
On the Natchez Language..... XIII. 483
Valentini's Theory of the Mexican Calendar Stone..... XIV. 663

BRINTON, D. G.—Obituary Dr. Hays..... XVIII. 259
The Society's Name..... XVIII. 553
Obituary Dr. John Neill..... XIX. 161
Obituary S. S. Haldeman..... XIX. 279
Names of the Gods in the Kiche Myths..... XIX. 613
BRITTON, J. B.—Rocky Mountain Coals..... XIV. 358
Improved Burettes..... XVI. 192
American Condensed Peat..... XVI. 656
Forms in which Carbon exists in Iron and Steel..... XVII 712
Arkansas Peat and Lignite..... XX. 225
BROWN, S.—Apparent Isomerism..... II. 75
BROWN-SEQUARD.—Blood from Dogs..... VI. 243
CAREY, H. C.—Obituary Stephen Colwell..... XII. 195
CARLETON.—On Liberty and Necessity..... IX. 131
CARLL, Jno. F.—Oil Well Records..... XVI. 346
Railroad and Oil Well Levels in Northwestern Pennsylvania..... XVI. 667
Results of Pennsylvania Oil Well Surveys..... XVII. 17
CATTELL, W. C.—The Study of Languages..... XVIII. 543
CHABAS, F.—Note on the Footmark in Hieroglyphic Script. XII. 193
CHANCE, H. M.—Hyner's Station Oil Well Section..... XVII. 670
Analysis of Fire-damp Explosions in Pennsylvania Anthracite Mines..... XIX. 405
Auriferous Gravels of North Carolina..... XIX. 477
CHANNING, W. F.—Meteorological Peculiarities of New England..... XIV. 154
CHASE, P. E.—Sanscrit and English Roots and Analogues. VII. 177
Chinese and Indo-European Roots and Analogues..... VIII. 5
Chinese Seal Inscriptions..... IX. 139
Chinese Analogues in other Languages.....IX. 145, 172, 231
Catalogue of Trade Tokens circulating during the war of the Rebellion..... IX. 242
Notes on Possible Vowel Sounds not used in any Language IX. 271
On the Diurnal Variations of the Barometer; elastic actions and reactions proportioned to mass; cyclical motions in a resisting medium, furnishing *harmonic indications of Sun's mass and distance;* anticipation of astronomical verifications or rectifications by means of varying pressures; *importance of the fundamental equations*, $v = \frac{gt}{2}$; $h = \frac{gt^2}{4}$; in which t represents the time of cosmical, molecular, or atomic rotation, and g represents the acceleration of a central force..... IX. 283
On the Height of the Tides; principles of (10) applied to the explanation of some tidal anomalies..... IX. 291

CHASE, P. E.—Daily Distribution of Heat; coördinate thermodynamic influences of solar radiation, cyclical elasticity, and barometric pressure..... IX. 345
Mechanical modification of electric and other elastic currents; gravity, electricity and terrestrial magnetism regarded as "modes of motion;" illustrations of the hypothesis that electricity consists simply of æthereal vibrations..... IX. 355
Polarizing influences of thermal convection and radiation; correspondence between Challis's laws of molecular action and the laws of attraction and rotation..... IX. 367
Lunar-monthly barometric variations; resemblances to daily barometric fluctuations..... IX. 395
Component elements of normal barometric tides; influence of oscillations moving with the velocity of light..... IX. 405
Comparative fitness of languages for musical expression. IX. 419
Primitive names of the Supreme Being..... IX. 420
Numerical Relations of Gravity and Magnetism; Formulation of Hypothesis of Unity of Elastic Force; Kinetic Ratio of Sound Waves to Light Waves..... IX. 425
Comparison of Solar and Lunar Magnetic and Aerial Tides; Magellanic medal awarded December 16, 1864. IX. 487
Radical Significance of Numerals..... X. 19
Copto-Egyptian Vocabulary..... X. 69
Relations of Magnetic Declination to Gravity; Heat and Attraction; Different manifestations of the Force which controls Stellar-Systems as well as Molecular Motions..... X. 97
Relations of Magnetic Inclination to Gravity; Accomplishment of Faraday's Desideratum..... X. 111
Experiments in Mechanical Polarization of magnetic needles by vibrations resembling those of Terrestrial convection and atmospheric currents; mechanical polarization of Sky Light..... X. 151
Observations on Skylight polarization at Philadelphia; Remarkable visibility of all the neutral Points..... X. 196
Comparative visibility of Arago's, Babinet's, and Brewster's Neutral Points, in Philadelphia and its neighborhood. X. 223
Relations of Temperature to Gravity and Density; General Equation of Oscillation and Parabolic motion; Thermodynamic *vis viva*; Comparative Energy of action and reaction at the source of Solar Radiation and at Earth's Orbit; simple harmonic relation between terrestrial gravity and the velocity of light. .. X. 261
Laws regulating the distribution and transmission of Solar heat..... X. 309

CHASE, P. E.—Probabilities in etymology; a reply to criticism..... X. 345
Meteor seen at Haverford College..... X. 353
Meteors of November 13, 14, 1867..... X. 357
Specific Magnetism of iron; cosmical and molecular comparisons..... X. 358
General connotations of magnetism; accordance between barometric and astronomical estimates of Sun's distance..... X. 368
Evidences of Lunar influence on rainfall..... X. 436
Tidal Rainfall of Philadelphia; similarity of influence in different independent periods..... X. 523
Meteors of November 13, 14, 1868..... X. 539
Philadelphia Life Tables..... XI. 17
Cosmical relations of light to gravity; influence of the *modulus* of light, velocity, mass, distance, centres of gyration, orbital eccentricity, inertia, and ratio of circumference to diameter on cosmical and molecular phenomena; solar centripetal reaction against the action of gravity towards the centre of the solar system gives *the velocity of light* in the fundamental equation $v = \frac{gt}{2}$..... XI. 103
Comparison of rainfall at Greenwich and Philadelphia; cosmical and local influences upon meteorology..... XI. 113
Tidal Rainfall; comparison of lunar influences at Providence, Chiswick and Toronto..... XI. 203
Comparison of mechanical Equivalents..... XI. 313
Monthly variations of rainfall at Philadelphia..... XI. 314
European and American rainfall; comparison of quarterly rains at Philadelphia and Lisbon..... XII. 38
American Weather Notes; local influences; importance of gradients; frequency of anticyclonic storms; local cyclones in general anticyclones..... XII. 40
Winds of the United States; General anticyclonism; storm centres at normal intersections of prevailing currents..... XII. 65
Resemblance of atmospheric, magnetic and oceanic currents; primary coördinate great circles; uniform evidences of gravitating influences..... XII. 68
Relation of Auroras to gravitating currents..... XII. 121
Winds of Europe..... XII. 123
Normal position of the tidal ellipsoid..... XII. 123
Cyclical Rainfalls at Lisbon; solar and lunar influences compared at different independent periods; blending tidal currents of different temperatures and different degrees of humidity..... XII. 178

CHASE, P. E.—Correlations of cosmical and molecular force; harmonic estimates of solar mass and distance from the explosive energy of oxygen and hydrogen; *vis viva* of wave propagation $= \frac{5}{9}$ of the *vis viva* of oscillating particles..... XII. 392
The Herschel-Stephenson Postulate; conditions of stability in elastic atmospheres; influences of centres of oscillation on planetary masses, distances, and times of rotation..... XII. 395
Further approximations to Sun's distance; accordant harmonies of terrestrial rotation, lunar distance, lunar revolution, explosive energy, and the velocity of light..... XII. 398
General relation of Auroras to Rainfall..... XII. 400
Influence of meteoric showers on Auroras..... XII. 401
Planetary Illustrations of Explosive Oscillation; apsidal and mean positions and eccentricities..... XII. 403
Undulatory harmonies of solar and planetary rotation, revolution, mass, gravity, and light..... XII. 406
Aethereal density and polarity; influences on cosmical masses and relative positions..... XII. 407
The sun-spot cycle of 11.07 years; wave-cycle of Jupiter's projectile locus (mean perihelion distance)..... XII. 410
Aethereal Oscillation, the primordial material Force; cardinal centres of wave influence; planetary illustrations..... XII. 411
Daily auroral and meteoric means..... XII. 516
Stellar and Planetary Correlations; relations of distance to cardinal points of explosive oscillation; rupturing velocities acquired by nebular "subsidence" from nd to $\frac{nd}{n+1}$; evidence of parabolic projection between α *Centauri* and Sun, *the locus of the paraboloid being determined by the solar modulus of light, Sun's linear centre of oscillation, and Sun's gravitating reaction against luminous undulation;* harmonic positions of loci of planetary rupturing velocities. *These are the only* POSITIVE *evidences yet discovered of gravitating influences between different stellar systems*..... XII. 518
Cyclical rainfall at San Francisco; indications of planetary as well as lunar influence..... XII. 523
Recent monthly Rainfall in the United States; compiled from Signal Service reports; lunar influence less disguised than solar..... XII. 555
Lunar-cyclical Rainfall in the northern Temperate Zone..... XII. 558

CHASE, P. E.—Oscillatory Forces in the Solar system; harmonies of apsidal and mean planetary positions and moments of inertia; influence of the ratio of the circumference to the diameter of a circle..... XIII. 140
Estimate of solar mass and distance from the equilibrium of elastic and gravitating forces..... XIII. 142
Note on Planeto-Taxis; reasons for limitations of "Bode's law"..... XIII. 143
Rotation of the sun and the Intra-asteroidal Planets..... XIII. 145
Planetary relations to the sun-spot period..... XIII. 147
Relative velocities of light and gravity..... XIII. 148
The gamuts of sound and light; correspondence of wave-length of the musical note, C_{23}, with that of the Fraunhofer C line; approximations in other wave-lengths of the two gamuts; comparative harmonic estimates of solar mass and distance; indications of a magnetic gamut, four octaves below that of light .. XIII. 149
The music of the spheres; apsidal and mean relations to musical intervals..... XIII. 193
Harmonic Indications of Intra-Mercurial planets; influence of Neptune, Jupiter and Sun in establishing harmonic nodes of planetary aggregation; *prediction of an "unknown planet or other seat of solar and planetary perturbation"*..... XIII. 237
Correlations of Planetary mass..... XIII. 239
Harmonies of Cosmical Rotation..... XIII. 243
Weather Study; confirmation of views by observations of signal service bureau..... XIII. 248
The Planetary node between Mercury and Vulcan..... XIII. 252
Recent Confirmation of an Astronomical Prediction..... XIII. 470
Comparison of Planetary Series; harmonic series the closest of all..... XIII. 471
Transcript of a curious MS. work in cypher, supposed to be astrological..... XIII. 477
Origin of Attractive Force..... XIV. 111
Saving Fund Life Insurance..... XIV. 148
Cosmical Thermodynamics; fifty postulates of unitary force, with references to illustrative papers..... XIV. 141
Cosmical evolution; relations of mean proportionality to time, mass, density, and the velocity of light..... XIV. 159
Jupiter-cyclical Rainfall..... XIV. 193
Cyclical rainfall at Barbados..... XIV. 195
Gravitating Waves; important nodal positions of Sun, Earth and Jupiter..... XIV. 344
Lunar monthly Rainfall in the United States, from observations of the Signal Service Bureau..... XIV. 416

CHASE, P. E.—Further Relations of Magnetic, Gravitating and Luminous Force; analogous equations in general physics, electricity, chemistry, and cosmogony; consequent estimate of Sun's mass, from Maxwell's magnetic data..... XIV. 607

Planetary Illustrations of the Creative Fiat..... XIV. 609

Yearly rainfall in the United States, from observations of the Signal Service Bureau..... XIV. 613

The Beginnings of Development; planetary linkages; *the velocity of light is the limit between the living forces of association and dissociation;* variety of rhythmical relations; successive steps of nebular condensation. XIV. 622

Further Dynamic Coördinations; *mathematical deduction of the ratio between the mean vis viva of gaseous volume (heat under constant volume) and the vis viva of uniform velocity (heat under constant pressure)*; harmonies of products and power of mass and distance..... XIV. 651

Nebular action in the solar system; confirmations of Herschel's theory of "subsidence;" electrical conductivity of selenium, illustrating the ratio of velocities between solar waves originating at Sun's surface and in Earth's orbit..... XVI. 184

On some fundamental propositions of central force; nucleal radius varying as the $\frac{3}{4}$ power of the atmospheric radius; oscillatory formulas of cyclical motion; views of various investigators; universal correlations..... XVI. 298

Aethereal influences in the solar system; evidence of 58 accordances..... XVI. 496

Chemical atoms, molecules and volumes; laws of Boyle, Charles and Avogadro..... XVI. 505

Further illustrations of central force; increase of velocity through "subsidence" should produce rupture in the periphery of a stationary nebula at $\frac{r}{n}$ when $n = 2 \div (3 - 2\sqrt{2})$; this influence shown by various planetary belts and positions; "subsidence" tending to form confocal elliptic orbits, with major axes of $\frac{3r}{2}$ and minor axes $\sqrt{2}\, r$, and belts, on account of collision, at $\frac{2r}{3}$; influence of the modulus of light and various ratios in positing planetary belts..... XVII. 98

Harmonies of solar spectrum; identity of law in luminous and planetary nodes..... XVII. 109

CHASE, P. E.—Results of wave interference; symmetrical formula, introducing masses of Sun and Jupiter, Sun's equatorial radius, Jupiter's projectile radius, and the velocity of light; significance of Earth's position and density; cosmical and molecular wave lengths; confirmation of "subsidence" and of harmonic undulations, by the moons of Earth, Mars, Jupiter, Saturn, and Uranus; *Alexander's adoption and confirmation of my harmonic predictions*..... XVII. 294
Criteria of the Nebular Hypothesis..... XVII. 341
Radiation and rotation; explanation of Kirkwood's analogy; belts of planetary pairs..... XVII. 701
Crucial Harmonies; nine confirmations of prediction.... XVIII. 34
The limiting constant of gravitation; new method of identifying the velocity of light with gravitating force..... XVIII. 41
The Philosophy of Christianity..... XVIII. 129
Further confirmations of prediction; two additional evidences of harmonic solar disturbance..... XVIII. 209
Harmonies of Lockyer's "Basic Lines;" the fundamental wave-length representing a centre of spherical gyration, in Earth's reaction against solar action; the other lines all harmonic..... XVIII. 224
Spectral estimates of Sun's distance..... XVIII. 227
Correlations of mass; equations between masses of Sun and four outer planets; centres of various nebular influences..... XVIII. 229
Approximate quadrature of the circle..... XVIII. 281
Apparent semi-diameter of the Sun, and nebular origin of the terrestrial day..... XVIII. 380
Velocity of light and Kirkwood's analogy; *five estimates of the velocity of light based on the Nebular Hypothesis.* XVIII. 425
Controlling centres; various estimates of mass and distance according to the Nebular Hypothesis..... XVIII. 429
Nodal estimate of the velocity of light..... XVIII. 425
Cometary Paraboloids; comparison of planetary positions as determined by inter-stellar action, with M. Gaussin's geometrical approximations; stellar approximations the closest..... XIX. 18
Cosmical determination of Joule's equivalent; correspondence of centrifugal "lift," indicated by the difference of polar and equatorial temperatures, with the centripetal fall which would give the equatorial velocity of rotation; confirmation of Clarke's discovery, that the molecular volume of chemically combined water is variable, while that of crystal water, or molecularly united water, is invariable..... XIX. 20

CHASE, P. E.—Relations of Chemical Affinity to Luminous and Cosmical Energies; simple ratio of mean molecular velocities in gases, to velocities of terrestrial rotation and revolution; harmonic wave-lengths in Vogel's hydrogen and Paalzow's oxygen-spectra..... XIX. 21
List of Papers communicated to the American Philosophical Society to April 16, 1880..... XIX. 184
Photodynamics..... XIX. 203
Photodynamic Notes.....XIX. 262, 354, 446, 567
Photodynamic Notes.....XX. 235, 237, 406, 476, 566, 638
CHEVALIER, M.—Survey for Canal under the English Channel..... XVII. 283
CLARK, Heber R.—On Coal Oil..... IX. 56
CLAYPOLE, E. W.—Commingling of Fossil Forms..... XX. 477
Occurrence of *Holoptychius* in the Chemung..... XX. 531
Catskill Rocks Erroneously Mapped in Bradford county.. XX. 531
Equivalent of Schoharie Grit in Middle Pennsylvania.... XX. 534
Kings Mill White Sandstone..... XX. 634
Fish Plate in the Chemung..... XX. 647
COATES, B. H.—On the Hessian Fly..... II. 42
Effects of Solitary Confinement in Producing Disease Among the Africans..... III. 143
Obituary of Dr. Chas. Caldwell..... VI. 77
Obituary of John Reynell..... VII. 156
Lake Dwellings, &c..... IX. 414
COLWELL, S.—Obituary of Isaac R. Davis..... VI. 299
COOPER, J. G.—Land Shells of the Pacific Slope ..... XVIII. 282
COPE.—Mylodon Annectens..... XI. 15
Cretaceous Tortoises..... XI. 16, 515
A New Mosasauroid Reptile..... XI. 116
Extinct Mammalia in the Caves of the United States..... XI. 171
Cretaceous Fishes of the United States.....XI. 194, 212, 240
Etheostomine Perch..... XI. 261
Cretaceous Reptilia of the United States .....XI. 271, 275
Fauna of the Eocene and Miocene of the United States.. XI. 285
Adocus..... XI. 295
Skeletons found near Woodbury..... XI. 310
Fossil Fishes..... XI. 316
Bottosaurus ..... XI. 367
Green River Fishes, Wyoming Territory.....XI. 370, 380
Chimœrid from New Jersey..... XI. 384
Lystrosaurus Frontosus.....XI. 370, 419
Herpetology Tropical America.....XI. 147, 496, 513, 553
Mososaurus Maximus..... XI. 571
Adocidæ..... XI. 547
Pythonomorpha from Kansas and New Mexico..... XI. 574

COPE.—Fossils from West Indies Island Caves..... XI. 608
Asteracanthus..... XI. 440
Australian and Maori Skulls..... XI. 446
North Carolina Fresh Water Fishes.....XI. 442, 448
Liodon Perlatus..... XI. 496
Mososaurus Brumbyi..... XI. 497
Ichthyology of the Antilles..... XI. 514
Megaptera Bellicosa..... XI. 516
Saurodontidæ..... XI. 529
Fresh Water Tertiary Fishes, Idaho .....XI. 538, 553, 559, 571
Ichthyology of the Marañon..... .....IX. 496, 599
Port Kennedy Bone Cave.....XII. 15, 73
Extinct Reptilia and Batrachia of North America..... XII. 41
Extinct Fossil Physostomi..... XII. 52
Fossil Cobitidæ in Idaho..... XII. 55
Megaptera Bellicosa..... XII. 103
Balœnoptera Cope ..... XII. 108
Cretaceous Vertebrata in Kansas State Agricultural College..... XII. 168
Expedition to Smoky Hill river, Kansas..... XII. 174
Extinct Batrachian Fauna of the Linton (O) Carboniferous ..... XII. 177
Hyrtl's Collection, Remarks on..... XII. 191
Distribution of Certain Extinct Vertebrata in North Carolina..... XII. 264
New Testudinate from the Kansas Chalk..... XII. 308
Method of Creation of Organic Forms..... XII. 229
Pythonomorpha found in the Kansas Cretaceous..... XII. 264
Remarks on Price's Phases of Modern Philosophy..... XII. 317
Fishes From Kansas Cretaceous..... XII. 327
Bathmodon..... XII. 417
New Ornithosaurians from Kansas..... XII. 420
Protostega..... XII. 422
New Vertebrata from Bridger Eocene Wyoming Territory.....XII. 460, 469
Pleurodira from Wyoming Eocene..... XII. 472
Tertiary Coal, &c. of Osino, Nevada..... XII. 478
Dinosauri in Wyoming transition Beds..... .. XII. 481
Vertebrata from Upper Waters of Bitter Creek, Wyoming Territory.....XII. 483, 487
Dentition of Metalophodon..... XII. 542
Vertebrata from Northern Part of the Tertiary Basin of Green River..... XII. 554
Ichthyology of Alaska..... XIII. 24
New Perissodactyles from the Bridger Eocene ..... XIII. 5
Short Footed Ungulata from the Wyoming Eocene..... XIII. 38

COPE.—Claw-Footed Carnivora of Wyoming Eocene..... XIII. 198
Osteology of the Extinct Tapiroid Hyrachyus..... XIII. 212
Remarks, January 16, 1874..... XIV. 110
Ichthyology of Utah ..... XIV. 129
Zoology of a Pool, Colorado..... XIV. 139
Vertebrata New Jersey Miocene..... XIV. 361
Remains of Populations in Eocene Northwestern New Mexico..... XIV. 475
Ohio Coal Measures Batrachia..... XVI. 573
Dinosaurus from Utah Trias..... XVI. 579
New Proboscidian..... XVI. 584
Brain of Coryphodon..... XVI. 616
Living Batrachia from Peru..... XVI. 666
Reptiles, &c. from the Austroriparian Region of the United States..... XVII. 63
Vertebrate Eastern Illinois Bone Bed..... XVII. 52
Adocidæ from Georgia Tertiary..... XVII. 82
Tenth Contribution Tropical America Herpetology..... XVII. 85
Kansas Cretaceous No. 3, Reptiles, &c..... XVII. 176
Cold Blooded Vertebrata from Peru..... XVII. 33
Permian Batrachia and Reptilia of Texas..... XVII. 505
Permian Amazon Fishes..... XVII. 673
Brain of Procamelus Occidentalis..... XVII. 49
Permian and Trias U. S. Vertebrata..... XVII. 182, 268
Reptilian Remains from Dakota..... XVII. 193
Vertebrata from Upper Tertiary..... XVII. 219
Triassic Saurians in Pennsylvania..... XVII. 231
Vertebrata from Dakota..... XVII. 233
Early Man in Oregon..... XVII. 292
Miocene Fauna of Oregon..... XVIII. 63
Eleventh Contribution to the Herpetology of Tropical America..... XVIII. 261
Second Contribution to the Miocene Fauna of Oregon.... XVIII. 370
On the Foramina of the Squamosal Bone of the Mammalia..... XVIII. 452
Contribution to the Vertebrata Permian Formation Texas..XIX. 27, 38
Tertiary Strata of the Great Basin..... XIX. 60
Genera of Creodonta..... XIX. 76
Vertebrata from the Wind River Eocene beds of Wyoming..... XIX. 195
Fossil Lower Jaw from the Colorado Basin..... XX. 199
Archæsthetism..... XX. 232
Structure of some Eocene Carniverous Animals..... XX. 226
New Marsupial from Lower Eocene of New Mexico..... XX. 232
Classification of Ungulate Mammalia.....XX. 299, 438
Remarkable New Permian Form from Texas..... XX. 405

COPE.—Systematic Arrangement of the Order Perissodactyla.....XIX. 353, 377
Structure of the Posterior Foot of the Toxodon..... XIX. 403
Mammalia Lowest Eocene beds of New Mexico..... XIX. 484
Geological Exploration of the Big Horn Region..... XIX. 650
Third Contribution to Permian Vertebrata in Texas.....XX. 405, 447
Synopsis of Puerco Eocene Vertebrata.....XX. 461, 478
Systematic Relations of Carniverous Fissipedia.....XX. 471, 478
New Synthetic Form Laramic Cretaceous Mammal..... XX. 476
Brains of Eocene Phenacodus and Periptychus.....XX. 509, 563
First Addition to Puerco Eocene Fauna.....XX. 545, 637
Contributions * * Vertebrata * * Lower Eocene Wyoming, 1881..... XX. 139
Absurd Hypothesis for the Extinction of Fossil Mammals, XX. 643
Fourth Contribution to the History of the Texas Permian, XX. 645
COPPÉE, Henry.—Obituary Washington Irving..... VII. 363
Flax Culture..... IX. 26
Obituary O. M. Mitchell..... IX. 147
CRANE, C. F.—Mediæval Sermon Books and Stories..... XX. 644
CRESSON, C. M.—Examination of an Exploded Locomotive..... XIV. 264
Rocky Mountain Coals..... XX. 358
Effect of Magnetic and Galvanic Forces on Iron and Steel, XVI. 603
Bituminous Material from Pulaski Co., Va..... XVII. 215
CRESSON, J. C. and **FRAZER**.—Transmission of Sound through Iron Pipes..... V. 118
CRESSON, John C.—Fall of a Gasholder..... V. 164
Storm, February 9, 1858..... VII. 176
Remarkable Electrical Phenomena..... VII. 385
Rain Storm, September 12, 1862..... IX. 59
Tornado, May 11, 1865..... X. 108
Four Rainbows ..... X. 148-149
Onion Disease..... X. 168
Fish in Coal Mines..... X. 168
Diamagnetism..... X. 199
Aurora, February 7, 20, 21, 1866..... X. 206
Copper Coin..... X. 270
Lunar Rings, July 27, 1866..... X. 270
High Barometer, February 10, &c., 1867..... X. 329
Bolide, April 5, 1867..... X. 335
Explosions in Mines ..... X. 338
Meteors, August 11, 1867..... X. 342
Odor and Temperature in Plants..... X. 354
Recent Auroras..... XI. 522
CROTCH, G. R.—Arrangement of the Families of Coleoptera, XIII. 75
CRUMMELL, Rev. Alex.—African Dialects..... IX. 3

DARLINGTON, Dr. Wm.—Obituary W. H. Dillingham.... VI. 91
DAVENPORT, G. E.—Tables of the Distribution of Ferns of the United States.....XX. 605, 641
DAVIS, Wm. Morris.—Deposit of Gold from Chlorine Solution..... XX. 64, 67
DAVIDSON.—New Transit Level..... X. 354
DAVIDSON, Geo.—Longitude of San Francisco..... XI. 91
Transit of Venus at Nagasaki..... XIV. 423
DAWSON, J. W.—Cape Breton Coal Beds.....IX. 165, 208
DELMAR, A.—Resources of Egypt..... XIV. 232
Resources of Spain..... XIV. 301
DERBY, O.—Geology of the Lower Amazon..... XVIII. 155
Diamantiferous Region of Paraná, Brazil..... XVIII. 251
DESOR, E.—On Lake Dwellings..... IX. 413
Pierres à eceuilles en Europe..... XVII. 714
DILLINGHAM, W. H.—Obituary Judge Gaston,..... IV. 49
DOCK.—Effects of Lightning in Deep Mines..... X. 288
DRAPER, Henry.—Photographing the Nebula of Orion.... XIX. 156
DRAPER, Jno. W.—Effects of Sunlight..... III. 111
Discovery of Oxygen in the Sun..... XVII. 74
DuBOIS, W. E.—Australian Gold from Mt. Alexander..... V. 313
Coins of the Caliphs..... V. 198
African Torques..... V. 202
On Aluminum..... ...VI. 141, 148
Turkish Paper Money.....VI. 154, 215
Lake Superior Silver Ore..... VI. 155
Late Additions to the Mint Cabinet..... ..... VI. 184
Specific Gravity apparatus.....VI. 193, 201
Chiriqui Images..... VII. 162
Japanese Coins and Austrian Money..... VIII. 264
On the Natural Dissemination of gold..... VIII. 273
On the Health of Philadelphia..... IX. 26
Assay Balances..... ..... IX. 226
Magnesium and its Light..... IX. 458
Siamese Photographs..... X. 201
Siver Ore..... XI. 92
Silver Coins of the Mint..... XI. 233
Lake Superior Silver Mines..... XI. 527
On a Supposed Coin found in Illinois..... XII. 224
Obituary J. R. Eckfeldt..... XII. 547
Engraved Disk found in Guatemala..... XIX. 191
DUCATEL.—Physical History of the State of Maryland..... III. 158
DUNGLISON, Dr. R.—Liability of Vaccine Virus to deterioration ..... I. 68
Worm in a Horse's Eye..... I. 200
Obituary J. K. Mitchell..... VI. 340

DUNGLISON, Dr. R.—Obituary Prof. Tucker..... IX. 64
Obituary Dr. Bethune..... IX. 70
DUPONCEAU, P. S.—On the Anamitic Language..... I. 235
Silk Culture in India..... I. 214
Centennial Address..... III. 1
DURAND, E.—On Arctic Plants..... VI. 186
Obituary F. A. Michaux..... VI. 223
Obituary Thos. Nuttall..... VII. 297
DUTTON, C. E.—Causes of Regional Elevations and Subsidences..... XII. 70
ECKFELDT, A.—On Aluminum.....VI. 141, 148
ECKFELDT vide **DuBOIS**.....
EDDY, H. T.—Radiant Heat, &c..... XX. 334
EMERSON, G.—Electricity from Steam..... II. 3
Excessive Mortality of Male Children..... IV. 212
Effects of Hot Weather upon Infants..... IV. 213
Causes of change of Sex..... V. 20
Importance of Phosphoric Acid in Agriculture..... VIII. 378
Light Produced by the Diamond by Friction..... VII. 175
Flax, Cotton and Paper.....IX. 91, 360
Powder Explosions..... IX. 295
Sörghum Culture.....IX. 116, 141
Hail Storm, September 25, 1867..... X. 351
Improvement in Whitney's Cotton Gin..... XI. 84
Wood Preserving from Decay..... XI. 111
The part taken by the American Philosophical Society in establishing stations for Meteorological observations. XI. 516
Earthquake, October 20, 1870..... XI. 522
Lunar Influence on Wet and Dry Weather..... XII. 17
EMMONS, Prof.—Geology of Montgomery Co., Md..... V. 85
ENNIS, J.—On the Nebular Hypothesis.....IX. 441, X. 150
ESPY.—Nephelescope..... II. 128
Law of Cooling of Atmospheric Air..... III. 155
FIELD, H. A.—Obituary J. F. W. Herschel..... XII. 217
FONTAINE, Wm.—Saltville Valley and Fault..... XIX. 349
FORSHEY, Prof.—The Great Mound near Washington, Adams Co., Mississippi..... I. 305
Meteors..... II. 67
FOULKE, W. P.—Criticism on Hugh Müller's Testimony of the Rocks..... VI. 253
FRALEY, Fred.—Address at Centennial of Incorporation... XVIII. 513
Obituary of Wm. Roberts..... XX. 199
Note on Pennsylvania Bi-Centennial..... XX. 497
FRAZER, J. F.—Tornado of August 5, 1843..... IV. 12
Eclipse of the Sun, 26th May, 1854..... VI. 38
Obituary of Henry Reed..... VI. 87

FRAZER, P.—Metallurgical Processes used at Friberg..... XI. 442
Spectroscopic Examination of the Aurora, April 10, 1872 XII. 579
Color of the Moon..... XIV. 155
Exfoliation Gettysburg Rocks..... XIV. 295
Limonites of York County, Pa..... XIV. 364
Traps of York County, Pa..... XIV. 402
Trap, Microscopical Sections of..... XIV. 430
Lithologie du fond des mers..... XVI. 238
Theory of Magnetic Declination..... XVI. 642
Mesozoic Ores..... XVI. 651
York and Adams Counties' Surveys..... XVI. 664
Remarks on Prime's Paper..... XVII. 255
Crystallography in Sculpture..... XVII. 258
Microscopical Observations of the Phonograph Record.. XVII. 531
Tables for Interconversion of French and English Units. XVII. 536
Ripple Marks on Limestone from Lancaster County..... XVII. 725
Telephonic Overtones..... XVIII. 39
Trap from Lancaster County..... XVIII. 96
Copper Veins near Liberty, Md., &c..... XVIII. 220
Obituary of Robert Frazer..... XVIII. 233
Fossil (?) Forms in Quartzose Rocks, &c..... XVIII. 277
Peach Bottom Slates..... XVIII. 366
Mirror for Opaque Objects ..... XVIII. 503
The Fifteen Problem..... XVIII. 505
Horizon of the South Valley Hill Rocks.....XX. 509–10
Improvements in the Aneroid Barometer.....XX. 604, 643
Summary of a Geology of Egypt..... XX. 637
Rocks of St. Davids..... XX. 638
FULTON, J.—Somerset County, Pa., Coal Beds..... XIV. 157
GABB, W. A.—Synopsis of the Mollusca of the Cretaceous Formation..... VIII. 57
Miocene Fossils in San Domingo..... XII. 571
Fossils common to Panama and San Domingo..... XII. 572
Indian Tribes and Languages of Costa Rica..... XIV. 483
GATSCHET, A. S.—The Timucua Language..... XVII. 490
Tónkawa Language..... XVI. 318
Timucua Language..... XVI. 626
Timucua Language..... XVIII. 465
GENTH, F. A.—San Domingo Rhodium Gold..... XI. 439
Gold Sand from Philadelphia..... XI. 439
Native Lead in Gold from Montana..... XI. 443
Corundum, its Alterations and Associated Minerals..... XIII. 361
Iron Ores from Spruce Creek..... XIV. 84
Reply to Dr. Sterry Hunt..... XIV. 216
Tellurium, &c..... XIV. 223
Tellurium and Vanadium Minerals..... XVII. 113

GENTH, F. A.—Pyrophyllite..... XVIII. 279
Contributions to Mineralogy, No. XX.....XX. 380, 381
GILMAN, D. C.—Alliance of the Universities and the Learned Societies..... XVIII. 536
GILPIN, H. D.—Obituary of Edward Livingston..... III. 92
GILPIN, Thos.—Position of Organic Remains..... IV. 27
Lunar Influence upon Weather..... V. 117
GINLEY, W.—Crural Process in Genus *Atrypa*..... XVII. 337
GODDARD.—On Daguerreotypes..... II. 144, 150
Invisible Photographic Rays..... III. 179
GRAHAM, J. D.—Magnetic Observations..... II. 84
Earthquake..... II. 259
Reflectors..... II. 260
On the North-east Boundary..... IV. 53
Observations on the Magnetic Dip..... IV. 205
Electrical Telegraphic Determination of Longitudes..... VI. 312
Contributions to Geography..... VI. 347
Contributions to Geography.....VII. 24, 123
Lunar Tidal Wave..... VII. 378
GRAY, Asa.—Letter from..... XVIII. 525
GREENE, W. H.—Dibenzyl..... XVIII. 345
Dioxyethyl-Methylene..... XVIII. 346
Synthesis of Saligenin..... XVIII. 451
Action of Hydrochloric Acid and Chlorine on Acetobenzoic Anhydrate..... XIX. 13
GRIER.—Loess Fish of Mississippi..... X. 255
GROFF.—Franklin's Watch..... X. 208
GROTE, A. R.—North American Platypterices..... XIV. 256
Philosophy of the Biblical Account of the Creation..... XVIII. 316
GUTZLAFF.—On Chinese Writing..... I. 120
HAGEN, John.—Inclination of the Apparent to the true Horizon.....XX. 205, 206
Reversion of Series..... XX. 647
HALDEMAN, S. S.—Ocular Phenomena..... IV. 239
Phonology of the Wyandots..... IV. 269
Longicorna of the United States..... IV. 371
An Optical Phenomenon..... V. 16
Beads from Indian Graves..... XI. 369
HALE, H.—Indian Tribes at Brantford, Connecticut..... XVIII. 378
On the Tutelo Indians.....XX. 643, 647
HALL, C. E.—Glacial Deposits in West Philadelphia..... XIV. 633
Progress Pennsylvania Geological Survey..... XVI. 55
Contributions to Palæontology..... XVI. 621
Pennsylvania Crystalline Rock, &c..... XVIII. 435
HALL, J.—Spirifera of Upper Helderberg..... X. 246
HAMMOND, W. A.—Friends who have Passed Away..... XVIII. 541
Obituary of Dr. J. W. Draper..... XX. 227

HARDEN, J. W.—Map of Anthracite Collieries..... XIII. 155
HARE, Dr. R.—Tornado of August, 1838..... I. 58
Metallic Calcium..... I. 83, 100
Rock Blasting by Galvanism..... I. 99
Barium..... I. 130
Radiant Heat..... I. 159
Pure Hydrochloric Acid..... I. 160
On Globular Potassium..... I. 166
New Method of Procuring Silicon..... I. 175
Galvanic Influence through Wire Coil..... I. 199
Freezing Mixtures..... I. 156
Rarefaction, &c., of Air..... I. 237
Galvanic Deflagration..... I. 253
Strictures on Redfield..... II. 141, 225
New Ethereal Liquid..... II. 142, 161
Non-Electricity of Nascent Steam..... II. 160
Foggy Air..... II. 180
Fusibility of Iridium, &c..... II. 182, 187, 196
Cloud-levels..... II. 187, 190
Amphide Salts..... II. 219
Roseate Light from Carbonized Hydrogen..... IV. 114
HARLAN, Dr.—Edentata..... II. 109
Orycterotherium..... II. 109, 147
HARRIS, Dr.—Buceros scutatos..... IX. 86
California Borax..... IX. 450
HART, John S.—Obituary of John Sanderson..... IV. 62
Fairy Folk Lore Spencer and Shakspeare..... XVI. 335
HARTSHORNE, H.—Obituary of E. Rhoads, M.D..... XII. 171
On Organic Physics..... XII. 311
Disputed Facts in Physiological Optics..... XVI. 218
Obituary of Geo. B. Wood..... XIX. 118
HAUPT, Herman.—Computation of the Effect of Gradients.. XII. 9
Seaboard Pipe line Notes..... XVII. 136
HAUPT, L. M.—On Scales of Maps..... XVIII. 47
Coördination of Methods of Expressing Thought..... XVIII. 348
HAYS, Dr.—On Catoptric Examination of the Eye..... I. 97
Color-Blindness..... I. 265
Operation for Strabismus..... I. 273
Koch's Mastodon..... II. 102
Tetracaulodon..... II. 105
On Missouri Fossils..... II. 183
Proboscidæ..... III. 44
HAYS, J. J.—On his Arctic Expedition of 1866..... VIII. 383
HAYDEN, F. V.—Geology of Missouri Valley..... X. 292
Lignite Beds of Upper Missouri..... X. 300
Geographical Distribution of Plants west of Mississippi... X. 315

HAYDEN, F. V.—Scarcity of Timber in the far West..... X. 322
Connecting Link between the Stone and Present Age..... X. 352
Indian Languages..... X. 389
Geology of Wyoming and Colorado..... X. 463
Fossils from New Mexico and California..... XI. 425
Fossil Fishes from the Upper Coal Measures of Nebraska. XI. 431
Geology of Wyoming and Colorado..... XI. 15, 431
Geology of Yellow and Missouri River..... XI. 112
Geological Map of the Upper Missouri..... XI. 115
Geology of Colorado and New Mexico..... XI. 212, 234
Fossil Fishes, &c..... XI. 316
HAYNES, J. L.—Asserted Antagonism between Nicotin and Strychnia..... XVI. 597
HEATH, E. R.—Explorations in Bolivia..... XIX. 564
HELLER.—Heller and Brightly's New Transit..... XII. 115
HENRY, Joseph.—Capillary Action..... I. 82
Electro Dynamic Induction..... I. 54, 315
Discovery of two Kinds of Dynamic Induction by a Galvanic Current..... I. 135
Phosphorescence..... II. 46
Heliostat..... II. 97
Magnetic Distribution..... II. 111
Electrical Induction..... II. 122, 229
Phosphorogenic Emanation..... III. 38
Velocity of Projectiles..... III. 165
Mellonis Apparatus..... IV. 22
Cohesion of Liquids..... IV. 56, 84
Classification of Mechanical Power..... IV. 127
Solar Maculæ..... IV. 173
Lightning Protectors..... IV. 179
Experiments on Electricity..... IV. 209
Polarization of Water..... IV. 229
Effects of Lightning on Telegraph Wires..... IV. 260
Corpuscular Constitution of Matter..... IV. 287
Radiation of Heat..... V. 108
HOFFMAN, W. J.—Cremation among the Pah Ute Indians..... XIV. 297, 414
HONEYMAN.—Varieties of Transported Boulders on the Nova Scotia Coast..... XIV. 237
HORN, G. H.—Revision of the Tenebrionidæ of North America..... XI. 115
Revision of the Meloidæ of the United States..... XIII. 88
Revision of the Hydrobinii..... XIII. 118
Synopsis of the Histeridæ of the United States..... XIII. 273
Contributions to a Knowledge of the Curculionidæ of the United States..... XIII. 407

HORN, G. H.—Rhyncophora of North America, *cf. Le Conte* XV.
Bostrichidæ of the United States..... XVII. 540
Colydiidæ of the United States..... XVII. 555
Revision of the Cremastochilus of the United States..... XVIII. 382
Euphoridæ of the United States..... XVIII. 397
Anisodactylus of the United States..... XIX. 162
Selenophorus of the United States..... XIX. 178
HORNER, W. E.—Notes on the Mastodon..... I. 279, 307
Microscopic Anatomy..... III. 89
HOUSTON, E. J.—Waterfall Sensitive to the Human Voice.. XII. 515
Supposed Allotropic Modification of Phosphorus..... XIV. 108
Efficiency of Dynamo-Electro Machines [vide Thompson, E.]..... XVIII. 58
HUBBARD, H. G.—Coleoptera of Michigan.....XVII. 593, 627, 643
Larva of Micromalthus debilis..... XVII. 666
INGERSOLL, C. J.—Obituary of Joseph Bonaparte..... VI. 71
INGERSOLL, J. R.—Obituary of H. D. Gilpin..... VII. 347
INGHAM, S. D.—Effect of Lightning on Telegraph Wires.. IV. 259
JAMES.—Obituary of Dr. Darlington..... IX. 330
JAYNE, Dr. H. F.—Revision of the Dermestidæ of the United States.....XX. 333, 343
JONES, Howard G.—Notes on the Cumberland and Potomac Coal Basin..... XIX. 111
JUSTICE, G. M.—On Observatories..... IV. 209
On Magnetism..... IV. 218
On the Wheat Worm..... V. 162
Washington Half Dollar..... V. 170
A New Spy Glass..... V. 41
Daguerreotypes of the Moon..... V. 208
Deprivation of Senses by Accidental Head Injury..... VI. 51
Engraving on Tin Plates..... VI. 165
Haverford School Refractory Telescope..... VI. 227
Photographs of the Moon..... VI. 237
KANE, E. K.—Arctic Vegetable Matter..... V. 266
KANE, J. K.—Obituary of J. R. Jackson..... II. 217
Arctic Exploration..... V. 159
Caloric Engines for Ships..... V. 305
Arctic Discovery..... V. 357
Obituary of Joseph Hopkinson..... VI. 12
Obituary of Wm. Strickland..... VI. 28
Obituary of Robt. M. Patterson..... VI. 60
KANE, T. L.—Coahuila..... XVI. 561
KENDALL, E. Otis.—Longitudes in the United States..... I. 141
Encke's Comet.....II. 160, 186, 201
Solar Eclipse, April 24, 1846..... IV. 253
Observations of Jupiter and Satellites, February 25, 1850. V. 139

KENDALL and **WALKER**.—Comet of 1843..... III. 67
KERR, W. C.—Topography as Affected by the Rotation of the Earth..... XIII. 190
KIRKWOOD, D.—Meteors, November 13, 14, 1868..... X. 546
Periodicity of Sun Spots..... XI. 92, 95
Comets and Meteors..... XI. 213, 215
Periodicity of Certain Rings..... XI. 299
Mass of Asteroids between Mars and Jupiter..... XI. 498
Formation and Primitive Structure of the Solar System.. XII. 163
Remarkable Relation between the Mean Motions of Jupiter, Saturn, Uranus and Neptune..... XII. 435
Meteors of January 2d..... XIII. 501
Meteoric Fireballs in the United States..... XVI. 590
Ages of the Sun and Fixed Stars..... XVI. 622
Ærolite Epoch of November 12, 13..... XVII. 339
Meteoric Fireballs in the United States..... XVIII. 239
Cosmogony of Laplace..... XVIII. 324
On the Origin of the Planets..... XIX. 15
KOHLER.—Anticlinal in Wythe County Lead Mine..... X. 270
KÖNIG, Dr. G. A.—Improvement of the Burette Valve.... XIV. 218
Astrophyllite, &c..... XVI. 509
Chromometry..... XVIII. 29, 184, 208
Limestone Rocks of Cumberland County, Pa..... XVIII. 39
Chromatic Chemical Analysis..... XVIII. 211
Spinel and Chondronite..... XVIII. 416
On Alaskaite..... XIX. 472
LAUTERBACH, B. F.—Irrelation of a Polarized Nerve.... XVII. 728
LAVENDER, Thos.—Water Spouts..... III. 134
LEA, H. C.—New Fossil Shells from Virginia Tertiary..... III. 162
Coprolites..... III. 143
LEA, Isaac.—Melania Cincinnatiensis..... I. 60, II. 30
Oolite formation in America..... I. 225, II. 147
Fresh Water and Land Shells..... II. 10, 30, 81, 224, 237, 241
Gestation of Naiades..... II. 34
Bulimus Ovatus..... II. 67
Fresh Water and Land Shells..... II. 147, 284
Lithodormi Perforations..... II. 213
Turbinated Shells..... II. 234
Pine Grove Coal..... II. 249
Fresh Water and Land Shells..... IV. 162
Reptilian Footmarks at Sharp Mountain, Pa..... V. 91
Muscular Fibres in the Foot of Fresh Water Mollusks... V. 187
Obituary of Richard C. Taylor..... V. 226
Fresh Water Mollusks of the United States..... V. 251
Thirteen New Species of Crinoidea..... XI. 14
LECONTE, Jno. L., and **HORN**, Geo. H.—Rhyncophora of North America..... XV. 1

LECONTE, J. L.—Obituary of Jno. F. Frazer..... XIII. 183
Schwartz's Florida Coleoptera..... XVII. 470
New Michigan Coleoptera..... XVII. 593
Laminated Native Copper from Lake Superior..... XVIII. 219
Corrosion of Iron Pipes by Water..... XVIII. 361
Tendencies of Scientific Culture ..... XVIII. 569
Remarks on the Death of Haldeman..... XIX. 109
Remarks on the Death of Darwin..... XX. 235
LEIDY, Jos.—Geology, &c., of the Missouri Headwaters.... VII. 10
LENTHALL, Jno.—Launch of the Ship Pennsylvania..... III. 103
LESLEY, J. P.—Insensible Gradation of Words..... VII. 129
Geology of the Arctic Archipelago .... VII. 293
Copper Horizon..... VII. 329
Becker's Aneroid..... VII. 342
Primary Limestone near Chadd's Ford, Pa..... VIII. 281
Superclinous Oil Springs of the West..... VIII. 262
Coal System of Southern Virginia..... IX. 30
Aurora at Cape Breton..... IX. 60
Coal Measures at Cape Breton..... IX. 93, 197
West Virginia Asphalt ..... IX. 183
Vortical Gales at Sea, January, 1864..... IX. 183
Abbeville Quarries..... IX. 388
Ancient Sea Level..... IX. 399
Pennsylvania Lignite..... IX. 463
Petroleum in Eastern Kentucky..... X. 33, 187
Compounds of Bar..... X. 137
Petroleum Well Sections..... X. 227
D'Orbigny Papyrus..... X. 543
Harris Museum in Alexandria..... X. 561
Aurora of April 15, 1869..... XI. 111
Section across the Allegheny Mountains..... XI. 115
Tornado at Cave City, Ky..... XI. 277
Violation of the Law of Debituminization..... XII. 125
Titaniferous Iron-ore Belt..... XII. 139
Upthrow fault at Embreville Furnace, East Tenn..... XII. 444
Geology of Tazewell, &c., counties of Virginia..... XII. 489
Record of Fourteen Oil Wells at Brady's Bend, Pa..... XII. 562
Iron-ores of the South Mountain..... XIII. 3
Dunning's Creek Fossil Ore-bed..... XIII. 156
Micrometer for Field-note Plotting..... XIII. 233
Structure and Erosion of Brush Mountain..... XIII. 503
Geology of Brown Hematite, Spruce Creek, Pa..... XIV. 19
Note on *Μακαριος*..... XVII. 7
Magnesian Limestone Analsyis..... XVII. 260
Drift Phenonema of the United States..... XVIII. 85
Gas Well at Murrayville, Pa..... XVIII. 207

LESLEY, J. P.—Brazilian Geography and Topography..... XVIII. 248
Ancient Buried River Channel crossing the Alleghany River..... XVIII. 354
Etymology of *Ηρακλης*..... XVIII. 363
Obituary of John W. Harden..... XVIII. 422
Spirit of a Philosophical Society..... XVIII. 582
On the Landa Alphabet..... XIX. 153
On the Shells found by H. C. Lewis at Saltville..... XIX. 155
Notes on certain Models..... XIX. 193
On Professor White's Notes..... XIX. 202
Egyptian Element in the names of Hebrew Kings..... XIX. 409
Greco-Egyptian Etymology of *Ιακχος*..... XIX. 110
Origin of the Great Lakes..... XX. 95
Obituary of E. Desor.....XX. 298, 519
Ice Erosion on the Blue Mountains..... XX. 468
Progress of the Second Geological Survey of Pennsylvania.....XX. 497, 537, 638
Egyptian character of Hebrew names..... XX. 506
Policy of the Society..... XX. 645
Identity of the terms Catskill and Ponent..... XX. 673
LESLEY, Joseph.—Outcrop Belt of East Kentucky Coal Field..... XIII. 270
LLOYD, H.—Inclinometer..... II. 237
LOCKE, Dr. John.—Magnetic Experiments..... I. 24
Magnetic Observations..... II. 35
Safety Guard..... II. 41
Telescopic Cross-hairs..... III. 102
Terrestial Magnetism..... IV. 63
Magnetic Observations..... IV. 109
A New Telegraphic Clock..... V. 51, 206
LOCKINGTON, W. N.—Role of Parasitic Protophytes..... XX. 647
LOOMIS, E.—Storm of December 20 1836..... I. 195
Astronomical Observations..... I. 129
Magnetic Dip..... I. 144, 308
Galle's Comet..... I. 216
Astronomical Observations.....II. 40, 45, 50, 51
Magnetic Observations.....II. 114, 176, 185
Meteorological Observations..... II. 178
Encke's Comet..... II. 182
Tornado..... II. 182
Storms in February, 1842..... III. 50
Latitude of Hudson Observatory..... IV. 116
LOWRIE, W. H.—Forces of Cosmical Motion..... XI. 195
Recession of Cosmical Nodes.....XI. 213, 220
LESQUEREUX, Leo.—American Coal Flora..... IX. 198
Arkansas Millstone Grit..... IX. 197

LESQUEREUX, Leo.—North American Carboniferous Flora XVI. 397
Silurian Land Plants in Ohio..... XVII. 163
Fungus in Darlington Shales..... XVII. 173
Cordaites in the Carboniferous Formation..... XVII. 315
On a Branch of Cordaites bearing Fruit..... XVIII. 222
North Carolina Triassic Plants found in Bucks County, Pa. XIX. 16
Cours de Botanique Fossile ..... XIX. 287
LEWIS, H. C.—On a Substance Resembling Döpplerite..... XIX. 648
The Aurora of April 19, 1882.....XX. 235, 283
Thickness of the Continental Glacier..... XX. 642
Terminal Moraine in Pennsylvania .....XX. 476, 662
LEWIS, Dr. James.—Self-registering Thermometer..... VII. 295
Prime Right-angled Triangles..... IX. 415
LEYBURN, Jno.—Obituary of Joseph Addison Alexander.. VII. 320
LUDLOW, Rev. Dr.—Prayer by ..... III. 2
MANSFIELD, A. K.—Refraction Tables ..... XVI. 425
MARSH, B. V.—Heights of Auroras..... X. 24
Meteors of August 24, 1869..... XI. 194
Latent Heat of Expansion in connection with the Luminosity of Meteors..... XIV. 114
MARSH, O. C.—Fossils of the Rocky Mountains found in 1870–72..... ..... XII. 578
Gigantic Mammals of the American Eocene..... XIII. 255
MARSHALL, Dr. John.—Derivatives of Mono-and-Dichlor-Salicylic Acid..... XVII. 476
MARSTON, Com.—Relics from Vera Cruz..... XI. 83
MASON, E. P.—Observations on Nebulæ..... I. 206
MASON, W. D. H.—Batrachian Foot-prints in Anthracite.. XVII. 716
MAXWELL, J. B.—Discovery of Mastodon Bones in New Jersey..... IV. 119
MAYER, A.—Results of Measurements, &c., of Eclipse seen August 7, 1869.....XI. 202, 204
McCARTER, H. G.—Vide Sadtler.....XVIII. 185
McCAULEY, E.—Manual of Egyptology..... XX. 1
McCLUNE.—Meteors, November 14, 1867..... X. 356
McCLURE.—Drawings of the Eclipse of the Sun, Aug. 7, 1869 XI. 202
McCREATH, A. S.—Analysis of a Pure Dolomite..... XIX. 197
McCULLOH.—On the Application of Polarized Light to Chemical Analysis..... IV. 349
McEWEN, C.—Time of Meridian Passage of a Star..... IV. 201
McILVAINE.—New Civil and Ecclesiastical Calendar (Perpetual) ..... IV. 192
McKEAN, W. V.—Daily and Periodical Literature..... XVIII. 577
McNEIL.—Explorations in Central America..... XI. 515
McQUILLEN, John H.—Vivisection of the Brain of a Pigeon.....XVII. 314, XVIII. 62

MEIGS, Dr. C. D.—Fœtal Cranium Measurements..... III. 127
Cyanosis Neonatorum..... III. 174
On the Clitoris..... IV. 129
Corpus Luteum..... IV. 305
On the Didelphis Virginiana..... IV. 327
MIANI.—African Exploration..... X. 95
MILLER.—Pulpit Rocks..... X. 382
MONKS, Miss S. P.—Columella and Stapes in Turtles..... XVII. 335
MORLOT, A.—Copper Age in the United States.....IX. 111, 119
MORRIS, Ellwood.—Turbine..... III. 169
MORRIS, Miss Margaretta H.—Hessian Fly ..... I. 318
MORTON, S. G.—Egyptian Form of Head, &c..... II. 239
Egyptian Ethnography..... III. 115
Pierce's Photographs of the Eclipse of the Sun August 7, 1869..... XI. 202
MORTON, H.—Professor Sadtler's Gas Analysis. ..... XVII. 722
MOWER, G., M. D.—Meteorological Observations in United States Military Posts..... III. 158
MUHLENBERG, F. A.—Obituary of Rev. C. P. Krauth.... XX. 612
NETTLETON, E. S.—Venango County Oil Well Records... XVI. 429
NEWBERRY, J. S.—Origin of the Great Lakes..... XX. 91
NICOLLET, J. N.—On the North West Territory..... III. 140
NULTY, Eugenius.—Magic Cyclovolute..... I. 293
Determination of Azimuth..... IV. 234
ORD, G.—Antarctic Expedition..... II. 233
Obituary of Wm. McIlvaine..... VI. 101
Obituary of C. C. Biddle ..... VI. 158
ORR, Hector.—Extraordinary Mildness of the Winter of 1870. XI. 279
Hail Storm May 8, 1870..... XI. 438
ORTON, J.—Cold Blooded Vertebrata in the Amazon, *Vide* Cope..... XVII. 33
OUTERBRIDGE, A. E.—Electrical Spectra of Metals..... XIV. 161
Divisibility of Metallic Gold..... XVI. 390
P.—An Acoustic Phenomenon in the Rocky Mountains..... XIII. 499
PAILHET, E.—Brazilian Minerals..... V. 33
PATTERSON, Robert—Obituary of W. E. DuBois..... XX. 102
PATTERSON, Dr. R. M.—Electricity from Steam..... I. 320
Sherwood's Discoveries in Magnetism ..... I. 25
Steam Thermometer..... II. 40
Earthquakes..... II. 260
Centennial Address by ..... III. 3
On a Speaking Machine..... IV. 83
Counterfeit Sovereign of George IV..... IV. 145
French and American Standard Weights..... IV. 155
Silver Coins from the Wreck of the *San Pedro*..... IV. 201
Diamond found at Dahlonga..... IV. 211

PATTERSON, Dr. R. M.—On the Coast Survey..... V. 51
PEALE, Franklin.—Manufacture of Gum-elastic..... IV. 221
On Coinage..... VI. 95, 106
Skater's Reel..... VI. 179
New Form of Valves..... VI. 243
Prehistoric Man and his Works..... VII. 411
North American Indian Stone Implements Classified and Description of Methods of Manufacture..... VIII. 265
Obituary of Dr. Samuel Moore..... VIII. 53
Antique Stone Hammer..... IX. 401
Soundings at the Delaware Water Gap..... IX. 451
Illinois Ancient Pottery..... IX. 460
Pottery of the Stone Age..... X. 430
PECKHAM.—Origin of Bitumens..... X. 445
PEIRCE, Professor.—On Erman's Orbits..... II. 21
Perturbations of Uranus by Neptune..... V. 15
PELTIER.—On Tornadoes..... I. 122
PEPPER, Dr. Wm.—Unique Case of Universal Hyperostosis XI. 571
Universal Hyperostosis associated with Osteoporosis. .... XII. 19
PHILLIPS, Henry, Jr.—Notes on Coins..... XVIII. 191
Additional Notes on Coins..... XVIII. 327
Earthquake at Aix la Chapelle..... XVIII. 216
Münster's Cosmography..... XVIII. 443
Two Early Maps of America..... XIX. 10
Recent Discoveries of Stone Implements in Africa and Asia XIX. 63
On the New Dictionary of the English Language..... XIX. 69
Obituary of Peter McCall..... XIX. 213
Early Philadelphia Almanacs..... XIX. 291
Progress of the New Dictionary of the English Language XX. 230
PLATT, F.—Section of Palæozoic Rocks, Blair County, Pa.. XVII. 349
PORTER, T. C.—Indian Figures at Safe Harbor..... X. 30, 255
Indian Figures near the Maryland Line..... X. 587
Indian Inscriptions..... XI. 3
POWEL.—Asclepias Fibre..... IX. 88
POWERS, Pike.—Expansion of Functions..... II. 40, 74
Integration of Irrational Functions..... II. 218
PRICE, E. K.—Trial by Jury..... IX. 209
The Family in Government..... IX. 295
Phases of Modern Philosophy..... XII. 289
Another Phase of Modern Philosophy..... XII. 361
Obituary Chief Justice John M. Read..... XIV. 271
Glacial Epoch..... XVI. 241
Trees for the Park, Circular Relative to..... XVI. 340
Sylviculture..... XVII. 197
Nature's Reforesting..... XVIII. 26
Rockery at the University of Pennsylvania..... XX. 119

PRIME, F. J.—Palæozoic Rocks of Lehigh County..... XVII. 248
Glacial Drift of Northampton County, Pa..... XVIII. 84
READ, Chief Justice John M.—Opinion as to the Right to Tax the Society... ..... IX. 14
REDFIELD, W. C.—Tides and Currents of Ocean and Atmosphere..... III. 86
REICHENBACH, Dr. O.—Solar Spots..... IX. 234
REID, J. D.—Carved Rocks on the Monongahela River.... XII. 11
RICHARDS.—Plumbago from Bucks County..... V. 171
ROBERTS, S.—On a Steamboat for Canals..... IV. 121
ROBERTS, S. W.—Obituary of E. Miller, C. E..... XII. 323
Obituary of C. B. Trego..... XIV. 356
ROBINSON, M.—Obituary of M. Chevalier..... XIX. 28
ROGERS, H. D.—Geology of Berkshire (Map) ..... II. 3
Earthquakes.....II. 258, 267
Comet ..... II. 278
Geological Notes..... III. 181
ROGERS, W. B. and H. D.—Earthquakes..... III. 65
Geology of the Virginia Tertiary Formations..... III. 88
ROGERS, Rev. Dr.—Improvement on the Carpenter's Square VI. 169
ROGERS, F.—Obituary of Joseph Henry..... XVIII. 461
ROSCOE, Dr.—Laurentian Fossil..... XI. 237
ROTHROCK, J. T.—Obituary of T. P. James.....XX. 293, 298
Microscopic Distinctions in Woods.....XX. 599, 640
ROTHWELL.—Map of the Anthracite Coal Basins..... XI. 113
RÜMKER.—On Galle's Second Comet..... I. 275
On Galle's First Comet..... I. 301
On Comet of 1840..... II. 75
Encke's Comet..... II. 99
Astronomical Observations..... II. 103
Elements of Mauvais' Comet..... IV. 67
Elements of Bremiker's Comet..... IV. 86
Observations on Astræ, &c..... IV. 347
SADTLER, S. P.—Natural Gas in Western Pennsylvania... XVI. 206
Natural Gas in Western Pennsylvania and New York.... XVI. 585
Calculation of Results in Analyses of Gases..... XVII. 473
Reply to Professor Morton .....XVII. 710, 712, 723
Chemical Preparation from a Petroleum Reaction..... XVIII. 44
Petrocene..... XVIII. 185
SANDERS, R. H.—Vide Franklin Platt..... XVII. 349
SCHWARTZ, C. A.—Vide Hubbard, H. G.....XVII. 593, 627, 643
SELLERS, Coleman,—Microscopic Examination of Fluids.. XIII. 180
Obituary of Joseph Harrison, Jr..... XIV. 347
SHAEFER, P. W.—Boring Records in the Anthracite Region..... XI. 93, 107
Coal Borings in the Wilkes-Barre Basin ..... XI. 235

SHAEFER, P. W.—Visibility of Stars in Daylight from Depths of Mines ..... XVIII. 179
SHARPLES, John.—Latitude of Haverford College..... XX. 647
SHARSWOOD, George.—Obituary of Joel Jones..... VII. 387
SHERWOOD, A.—Section of Devonian Rocks at Palenville in the Catskills..... XVII. 346
SMITH.—On the Explosion of the "Peacemaker"..... IV. 47
SMITH, Edgar F., and **WILEY**, Thomas N.—On the Corrundum at Allentown, Pa.....XX 229, 230
SMITH, E. F.—Chlorine Derivations from Toluol..XVI. 667 XVII. 29
Dichlorsalicylic Acid..... XVII. 68
Decomposition of Chromic Iron..... XVII. 216
Precipitation of Copper with Sodium Carbonate..... .. XVII. 218
A New Monochlordinitrophenol, &c..... XVII. 706
Electrolytic Estimation of Cadmium..... ...XVIII. 46
Analysis of a Calculus found in a Deer..... XVIII. 213
Detection of Iron by Salicylic Acid..... XVIII. 214
SMITH, R. P.—Pennsylvania County Maps..... IX. 350
SNOWDEN, A. L.—Need of Civil Service Reform..... XVIII. 559
SPENCER, J. W.—Pre-glacial Outlet of Lake Erie Basin into Ontario..... XIX. 300
STEVENSON, J. J.—Alleged Parallelism of Coal-beds..... XIV. 283
Geology of West Virginia..... XIV. 370
Geological Relations of the Lignite Groups of the Far West... ..... XIV. 447
Surface Geology of Southwest Pennsylvania, &c..... XVIII. 289
Re-eroded Channel-way..... XIX. 84
Geology of Wise, Lee and Scott Counties Virginia.....XIX. 88, 219
Upper Freeport Coal-bed, &c., Virginia ..... XIX. 276
Quinnimont Coal Group, Mercer County, West. Va..... XIX. 498
Cañon City, Colorado, Coal Field..... XIX. 505
On the Laramie Group, near Raton..... XX. 107
STOWELL, T. B.—On the Vagus Nerve of the Domestic Cat..... XX. 123
STRONG, Theo.—Transformation of the Series $S = ax + bx^2 + cx^3$, &c..... III. 49
Analytical Trigonometry ..... III. 49
STRONG, Wm.—Obituary of Horace Binney..... XVI. 1
TAFEL, R. M.—Investigation into the Laws of English Orthography and Pronunciation..... VIII. 285
English Orthography ..... IX. 39
TAYLOR, R. C.—Water Spouts..... III. 136
Sigillaria ..... III. 149
Geology of Cuba ..... III. 154
Washington Silver Mine, North Carolina..... IV. 150
Asphaltum in New Brunswick ..... V. 241

THAYER, Russell.—Movements of Troops in Cities ..... XVIII. 89
Effects in Using a Secondary Battery..... XX. 639
THOMAS, N. Wiley.—Vide Smith, Edgar F.....XX. 229, 230
THOMPSON, E.—Circumstances Influencing the Efficiency of Dynamo-Electric Machines.....XVIII. 58
TILGHMAN, R. A.—On the Decomposing Power of Water at High Temperatures..... IV. 353
TREGO, C. B.—Disc. of Theodosius..... V. 125
Indian Walk of 1737..... V. 127
Seventeen-year Locusts..... V. 209
Report on Wools..... V. 257
Columbian Guano..... VI. 188
Slag from Easton..... VI. 246
Deposit from Munnikurrun Hot Springs ..... VII. 4
On Pre-historic Man..... VII. 415
TRIPPEL.—Schintz's Gas Generator..... X. 9
TROWBRIDGE, D.—Atmosphere of the Sun and Planets.. XVI. 327
TROYON.—Merovingian Graveyard..... X. 3
TUCKER, Professor.—On the Siamese Twins ..... II. 22
Effect of Gold Mines of Colorado upon the Value of the Precious Metals ..... V. 148
TYSON, Job R.—Pennsylvania Social State Prior to 1743.... III. 119
Obituary of Wm. Peter..... VI. 115
TYSON, P.—Cumberland Coal Basin..... XI. 235
WALKER, Sears C.—Longitudes in Southern Michigan..... I. 7
Longitudes from Observations of Meteors..... I. 161
Mirage ..... I. 188
Lunar Occultations of the Fixed Stars..... I. 228
August Meteors..... I. 261
Obituary of E. R. Mason..... II. 7
Encke's Comet ..... II. 186
Comet of 1843.....II. 267, 270, 272, 275
On Periodical Meteors..... II. 618
WALKER and **KENDALL**.—Comet of 1843 ..... III. 67
WALKER, S. C.—Ertel Meridian Circle..... IV. 113
Biela Comets..... IV. 235
Discovery of a Missing Star..... IV. 311
Elements of the Planet Neptune.....IV. 332, 339
Ephemeris of the Planet Neptune..... V. 20
Telegraphic Operations of the United States Coast Survey V. 74
Analogy of Periods of Rotation of Primary Planets..... V. 197
WALTER, T. N.—Certain Erroneous Statements Respecting the Foundation of the Great Tower of the New Public Buildings in Philadelphia..... XVI. 337
WAYNE, Major.—Introduction of the Camel into the United States ..... VI. 275

WETHERILL, C. M.—Neutral Sulphate of the Oxide of Ethyl ..... V. 3[illegible]
Molybdenite and Zircon from Reading, Pa..... V. 2[illegible]
Gold in Pennsylvania..... V. [illegible]
Deterioration of Ether by age ..... IX. [illegible]
WHIPPLE, J. A.—On a Crystallotype of the Moon.....V. 312, 354
WHIPPLE, S. H.—Mastodon Bones..... IV. 35
WHITE, I. C.—Notes on the Sharon Conglomerate..... XIX. 198
Geology of West Virginia..... XIX. 438
On the Geology of the Cheat River .....XX. 477, 479
WILCOCKS, Dr. Alexander.—On the Solar System..... IX. 384
Magic Mirror..... XII. 576
Shadows without Penumbra..... XVII. 705
WILDER, B. G.—On the Brain of the Felis Domestica..... XIX. 524
WILLIAMSON, R. S.—Meteorological Observations taken on the Nile in 1873..... XIV. 632
WILLISTON, S. W.—Monograph of American Synphidæ.. XX. 299
WINCHELL, A.—Geological Age of the Marshall Group. XI. 57, 245, 385
WOOD, G. B.—Annual Address..... VII. 331
Indian Relics from New Jersey..... XI. 213
Revival of Peach Trees..... XI. 237
Indian Skeleton..... XI. 283
Revival of Fruit Trees..... XII. 3
Influence of Fresh Wood Ashes on the Growth of Wheat, Potatoes, &c..... XII. 323
WOOD, Horatio C.—Fresh Water Algæ of Eastern North America..... XI. 119
Veratria..... XI. 214
Medical Activity of North American Hemp..... XI. 226
Fresh Water Algæ of the United States.....XI. 571, 574
On the Nature of Diphtheria..... XX. 477
WOOTTEN, J. E.—Apparatus to Consume Anthracite Coal Waste..... XVI. 214
ZANTEDESCHI.—Telegraphs for Railroad Uses..... VI. 266
Duplex Transmission..... VI. 267
Measure of Electrical Nervous Muscular Sensibility..... VI. 291
On the Polarized Light of Comets..... VI. 333
On Photography..... IX. 372
Dew and Hoar Frost..... IX. 456